



A.W. Edmonds Feb y. 1864

Brilish Minerilogy

coloured figures.

intended to ducidate

The Mineralogy

Grant Britain

By Martha Proby

Them James Sowerby, Th. S. S.

Honoragementer of the Physical Society of

Gettengen;

Designer of English Betany, Author of

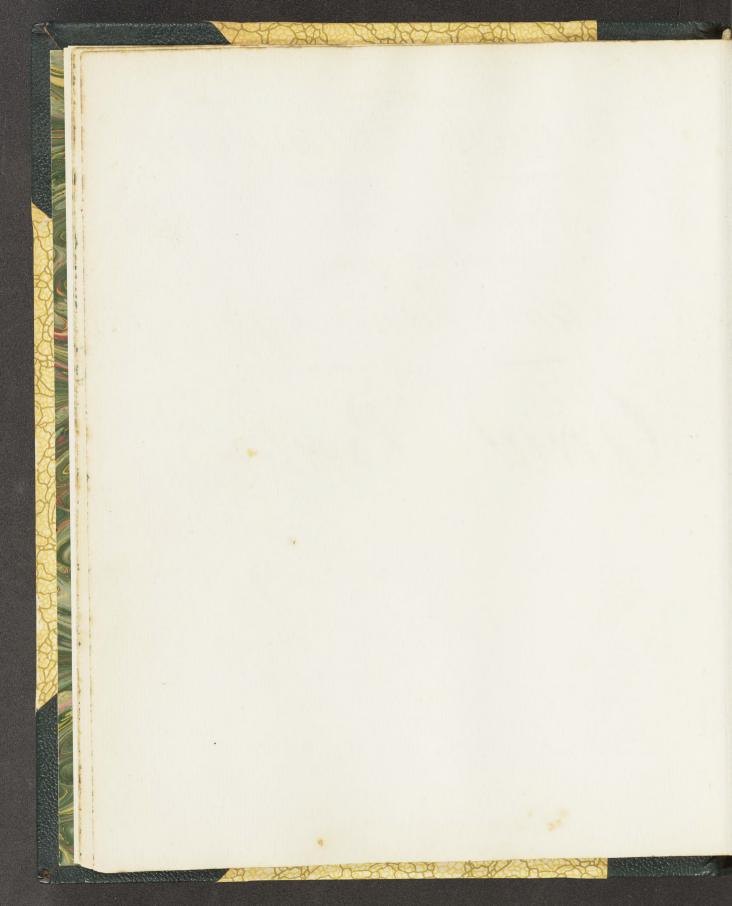
English Thungi, &c.

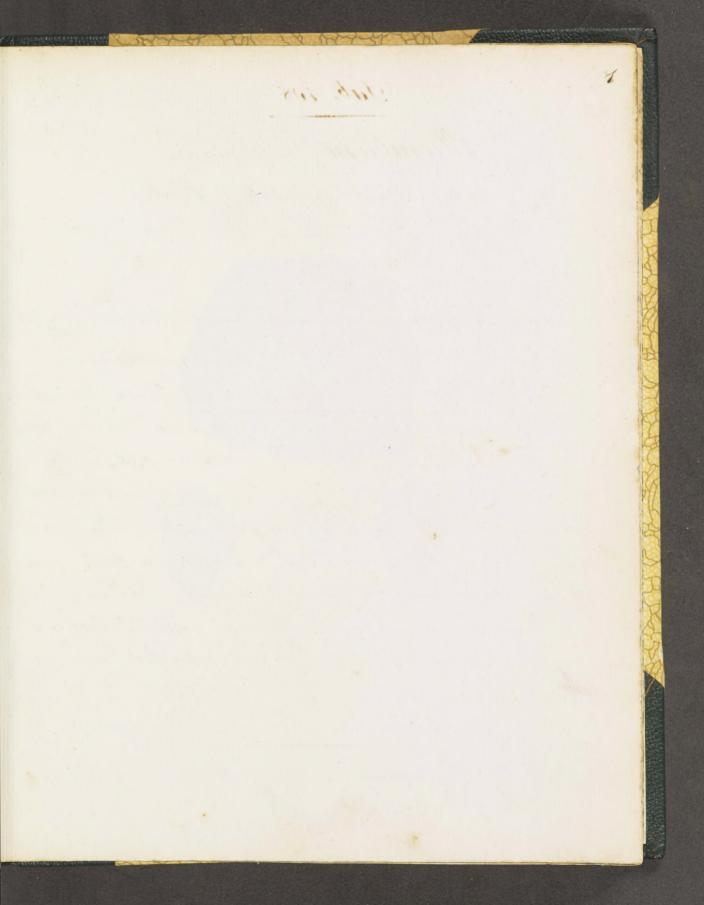
VOLII

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British, Ministra whent funner inended in Amintan the Mountage Will Smill By Holly Pily cità premi man mil. The sound of the

Robe Stickt, 1903.



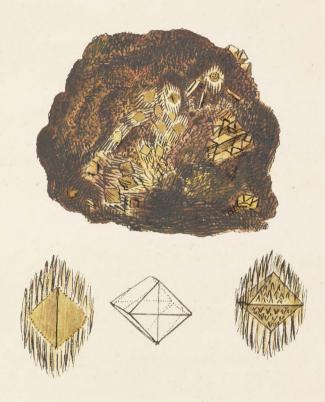


Jab. 108

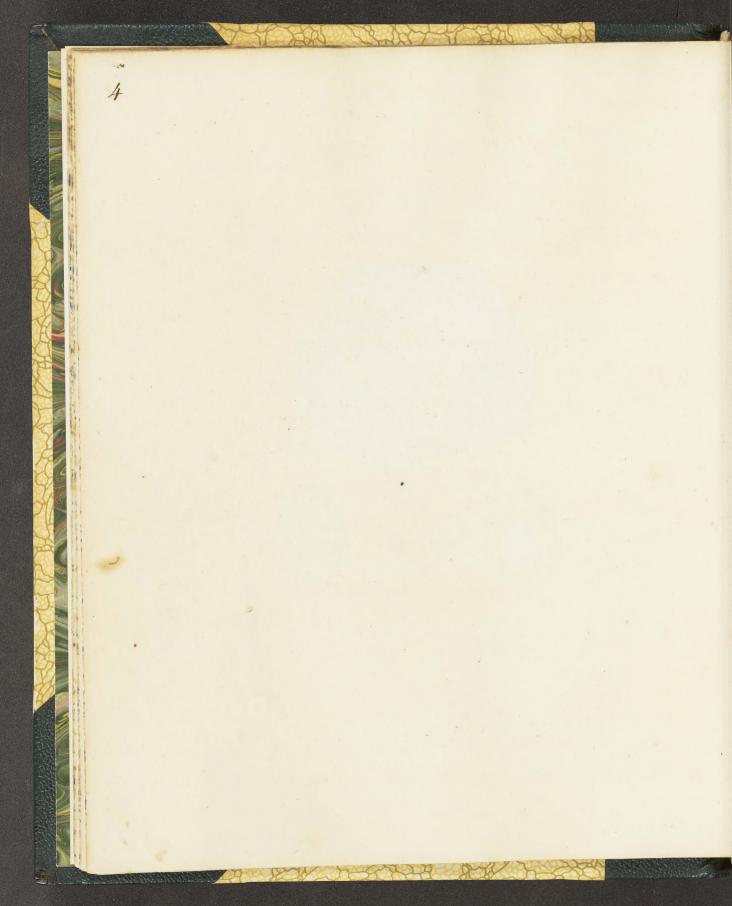
Plumbum sulphatum. Ergstallized Sulphate of Lead.

Oio. 1. Crystallized .

This is one of the set of modefications of Sulphale of Send which does not appear to have been noticed before. and shows a curious hange as to the formation lathing place by means of springle. The since hart of the crystals one of the primitive relaidron, apparently towneding to a new modification by decomposition, and forming speciale from the mutual bases of the hos synamide of the relaidron - This seems quite new synamide of the relaidron - This seems quite new to the mineralogical world. however sow has sin bonate of Lead in dodecardal crystals, booking as of decomposing, with speciales attached in a pai-



Onystallized Sulphate of Lead, or Varidated Lead Ore, in Spicula on the surface of the Crystals.



Tab. 109

Argilla hydrata.

Class 2. Earths. Order 1. Homogeneous.

Gen. 1. Argil. Spic. 2. Hydraryillite.

Dio. 1. Crystallized.

Spec. Char. Argil in combination with hater.

Syn. Hydrargillite. Davy in Phil. Frans.

Wavellite. Babington in Davy paper Phil. Frans.

I'm was one called a Leolite, but more properly Phydrar gillite (from Escop water, and appearance is in hemispharical groups of orgetaling (on the surface of the gangue); "in some instances it exists as a vollection of veregularly disposed prisms forming small veins in the stone: no insulated or distinct crystals have get been found." Soverby's specimens terminate the lastic outwardly, something like sufficient of Bargles, and seem to be parts of a defrueful actaidron, sometimis a little thromated: See middle figures.)" Its volous is white in a few cases with a tringe of gray or green, and

In some fuces (apparently heginning to decompose) of yellow. Its lustre is sithy, some nearly spague, Its texhave is loose." Our apper fig: cheefly resembles this description. The lower fig: has small dark willer, which
seem to be same substance with the margin darkers.
Those larger spaceding radio, sohich condense mito white
opaque wieles with the help of smaller stellar, terminate
lowards the ends. The whiter parts are small spague
clusters, in which the thone darker ones are imbedded:
A similar substance has been found mean Frure, Corn:
which has seen examined by the her: Welprepor of which
Those hereafter to give a figure.

Alumine 70

Theid 26.2

Lime 1.4

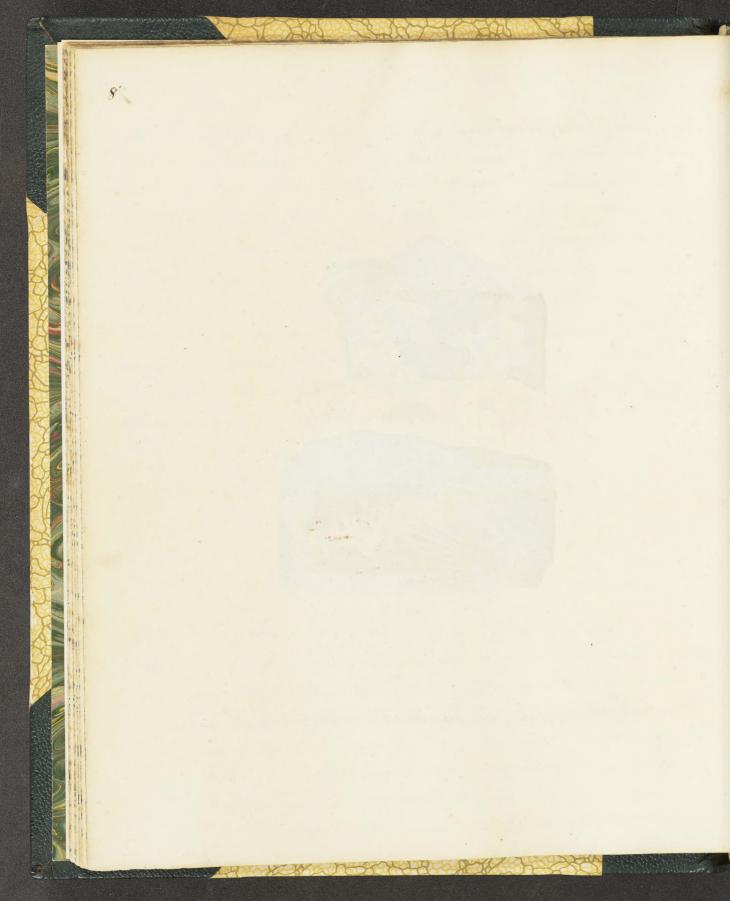
Lofs 2.4

100.0

Upon further examination we find it hofsible that the crystal may be derived from the sale, as we find the fraction forfunctionar to the terminal faces of the right hand figure on a plane with the lengthened sides; and another parallel to the plane of the terminal face. The whemm or mism is confor the plane of the terminal face. The whemm or mism is confrom to these faces, forming 4 sides, and there are 2 triangular faces set edgerator on the broader angle there faces were too faces set edgerator on the broader angle there faces were too small to be measured. These faces are often somewhat rounded with a rusty sort of secomposition.



Hydrangillite, or Wavellite. Bristol.



Prontia Sulphata.

Sulphate of Strontian.

Gafs 2. Earths. Ord: 1. Homogeneous. Gen. 6. Strontia. Spec. 2. Sulphate of.

Dio. T. crystallized

Spec. Chav. Strontian in combination with Sulphuric Acid. Syn. Schowifel Saurer Strontianit. Emmert. 3.312.

Shontiane. Daubenton, tab. 19.

La Calestine. 16 rochant, 1. 640.

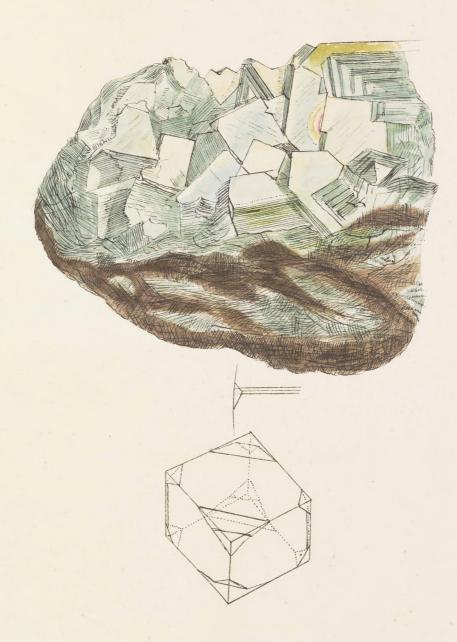
Strontiane sulfatie. Harry, 2.318.

at Redland, war Bristed. The observe. That he discovered delached veins in different parts of the cliff. The strata in which the veins are found are nearly horizontal, consisting of Lime-Stone of different hardness, and argillaceour Sandstone intermined with Day and Lypsum, and some of the sistems were filled up with sufficient of Strontian from 3 to 12 inches thick.

The primitive appears to be a show boidal from of about 105, 2 75 " ours are a little truncated at the solid angles, otherwise they represent the primitive,

200

Sulphate of Shorthan was in many cabinets before this discovery of Mr. Tobin's, as sulphate of Lome, or Sulphate of Barytis, - among others in the Woodwardian Collection at Cambridge. It is found in Sicily, Mont-Martre pear Paris, and in America. Those of Sicily are said to be the finest, and are columnar, not tabular like the Bristol ones.



Crystallized Sulphate of Shortian. Bristol.



Plumbum sulphureum; rad. antimoniatum! Antimoniated Galena or Sulphuret of Lead.

Spic. 3. Metals. Ord. 1. Homogeneous.

Gen. 15. Lead. Spic. 3. Sulphuret of Lead.

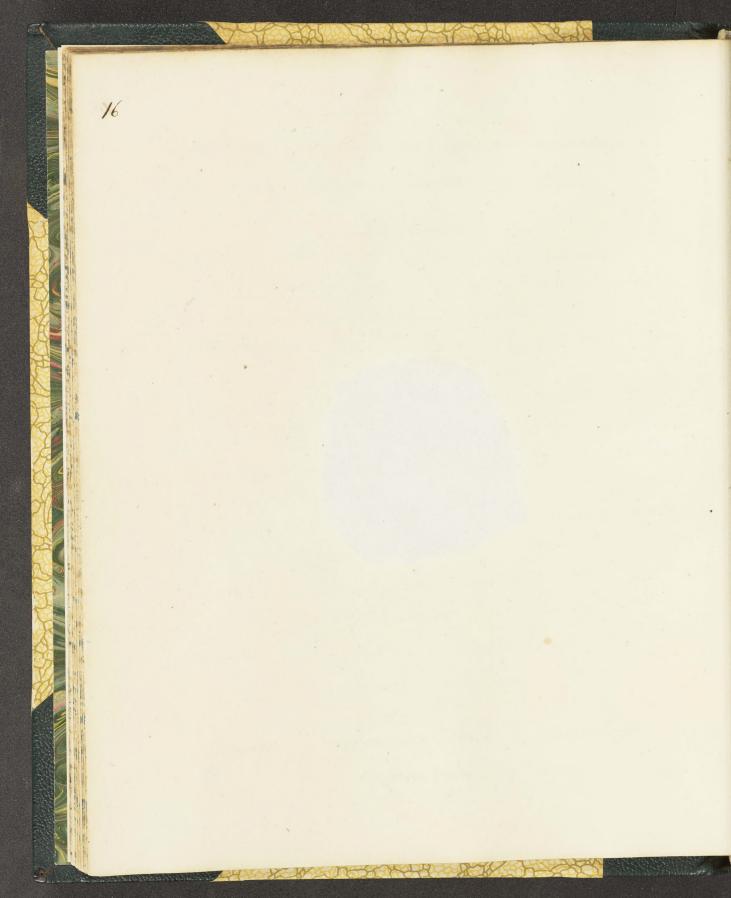
Dio. 2 Smitative. Vac. Antimomated.

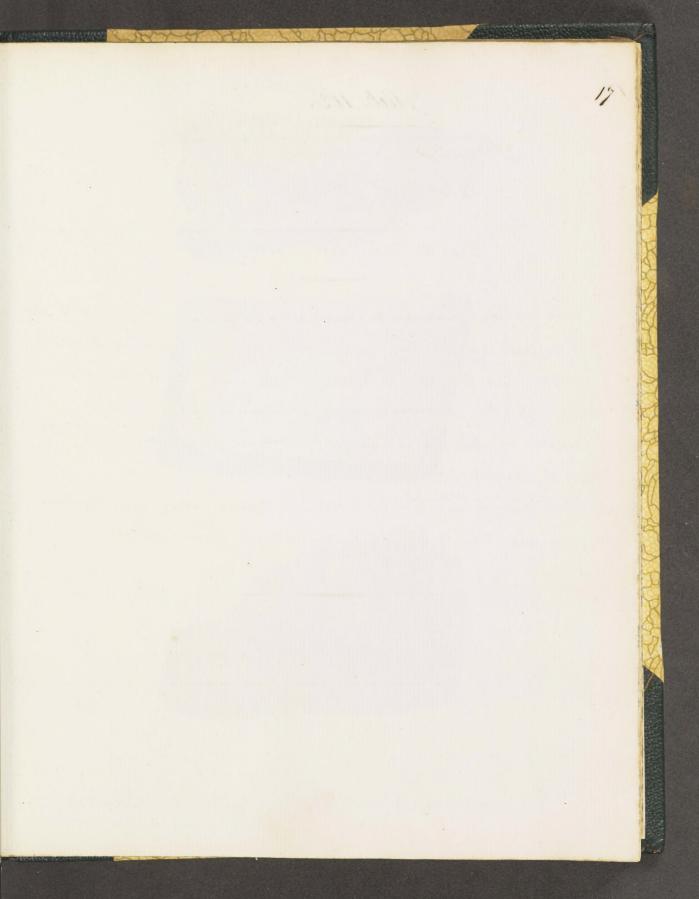
Syn. Plomb Sulfuré antimonifere. Hain, 3.462.

This is often found anompanying common Galena. It is externally anown to Ministeralogists by the pearlies small shield appearance which is attributed to the nature of the crystallisation of the Andrinony, and which seems to decange the finishing and of someon Galena; so that one substance interrupting and other may be recognized free; and perhaps in some other other may be able to show something more important in the nature of the laws of mixed crystallitation. This specimen seems to be left antimonialed towards the base, and somewhat resembling tab. 114.



Sulphures of Lead containing a small portion of Antimony.





Tab. 112.

Strontial sulphatal.

Sulphate of Strontian.

Div. 2. Smitative.

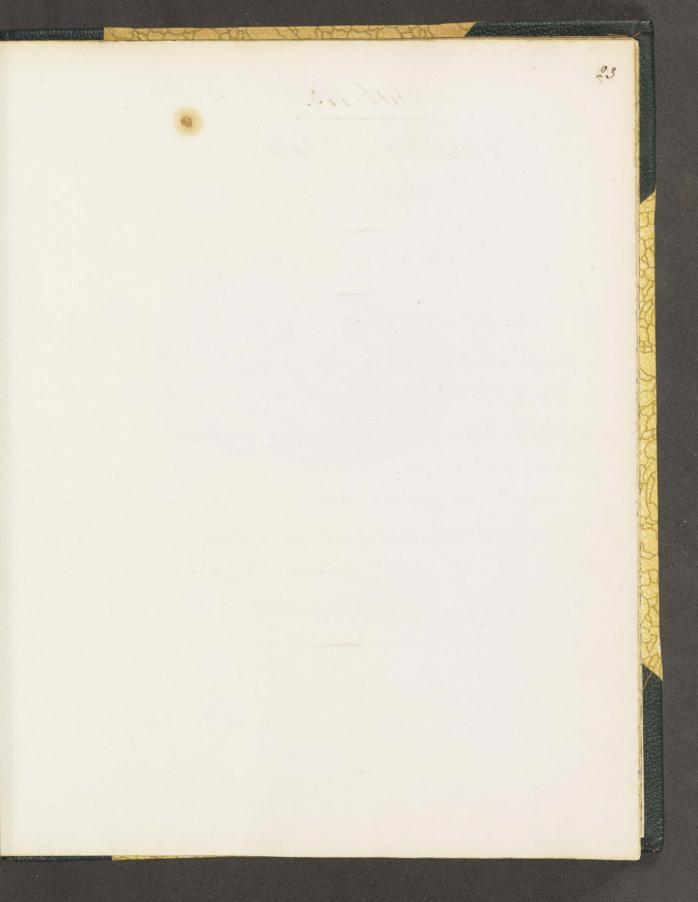
The upper figure is from Aust Passage, near Brist and its curved appearance unders it at first sight sufficiently acrives, here to partaking of he where and red colours. The strated Strontian in the middle figure seems to move to the latestine, more generally than the last, as it is here coloured.

The fibres in this sort, which comes from Bushiton; are very straight, and somewhat saminated.



Stricted Sulphate of Strontian & Calestine.





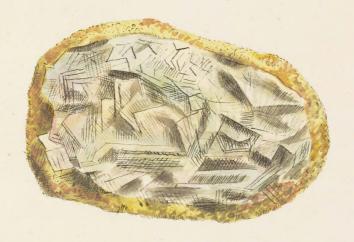
Sab. 113.

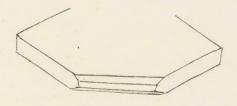
Strontid sulphata. Sulphate of Strontian.

Div. 1. Crystallined.

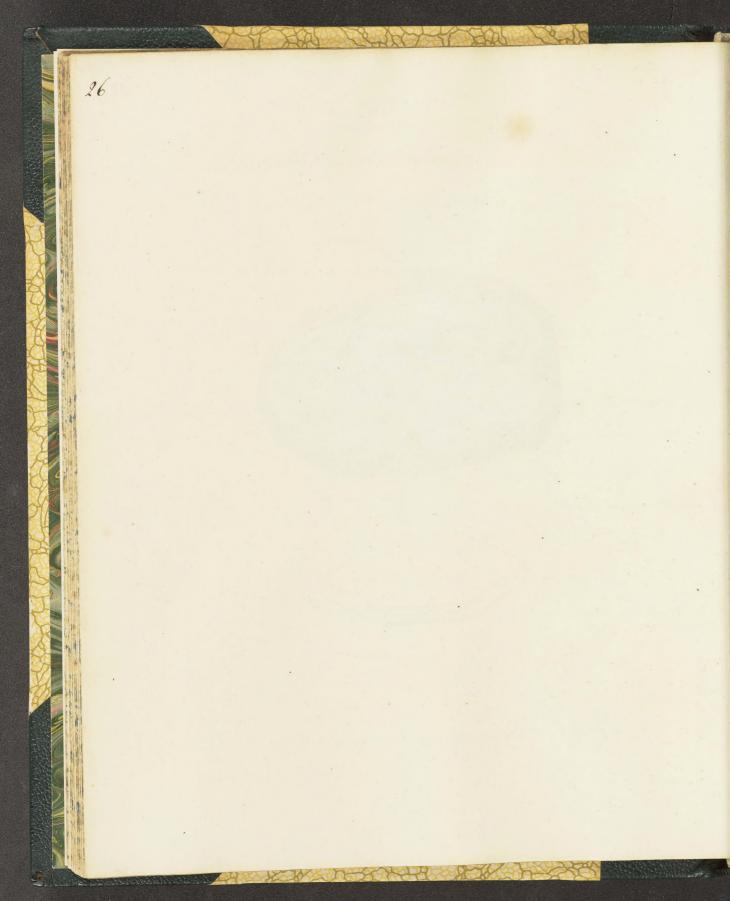
She plated Showhan here figured is in a sort of Sandy matrix. It is the that in lab excepting that the latter was in much larger paies, without matrix, I nearly white. The brystals are more confused, yet are occasionally found very neatly de-termined at two or three sides, as in this specimen. The geometrical shouth at the bottom shows they be-actions at the corner, between the friendine faces.

This hand is chiefly found at hedland near Brists.





Plated Sulphate of Strontian. Bustel.



Plumbum sulphureum; var. hamatiticum!. Thematitic Sulphuret of Lead, or Homatitic Galena!.

Class 3. Metals. Ord. 1. Homogeneous.

Gen. 15. Lead. Spec. 3. Susphuret of Lead.

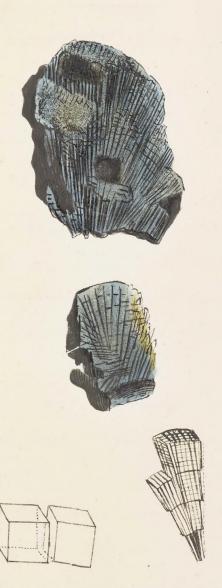
Dio. 2. Imitativo.

Lowerlie had heard that Galena was to be found in load at Mattock he had a piece dent him from thenie which being full of decomposing Papiter fell to piece. This is not only rane for heing among coal, but for being in this semious hamatitie form, a form which has not agh been noticed in Galena, I which will help more perfectly to show the nature of substances that have a regular frimitive crystal, possing into, or placing themselves in, a rounding figure.

The present specimen is tachating from a centre, forming circular and hamispharical segments, much resembling Hamatitic From Ore - tab. 62. and.

This substance is evidently formed of cubes, and has afourned this particular shape from; certain comment transcer; and settling from its solvent with perfect preservation

atthough very minute they are distinct cubes: and as any form made up of perpet cities with lovel sides would, in forming a radiating figure he loose in its tecture, unless well closed with others in the interstains; so this, so foosely formed in that particular, is very weeful to us to determine other facts of the like nature. The left hand figure is of two nuclei — and the right hand figure shows the manner of its accumulation, and will be useful in analogy.



Sulphwrist of Sead, or Galena diverging from a -Centre in a hamutitie form.

Jab. 115

Arsenicum ferrum.

Tronxy Arsonic.

Glafs 3. Motals. Brd. 1. Homogeneous. Gen. Amenic. Spec. Combined to From. Dic.1. Crystallized.

Spec. Chari. Arsenie in combination with Iron.

Syn. Ther arsenical . Hairy , 4. 56.

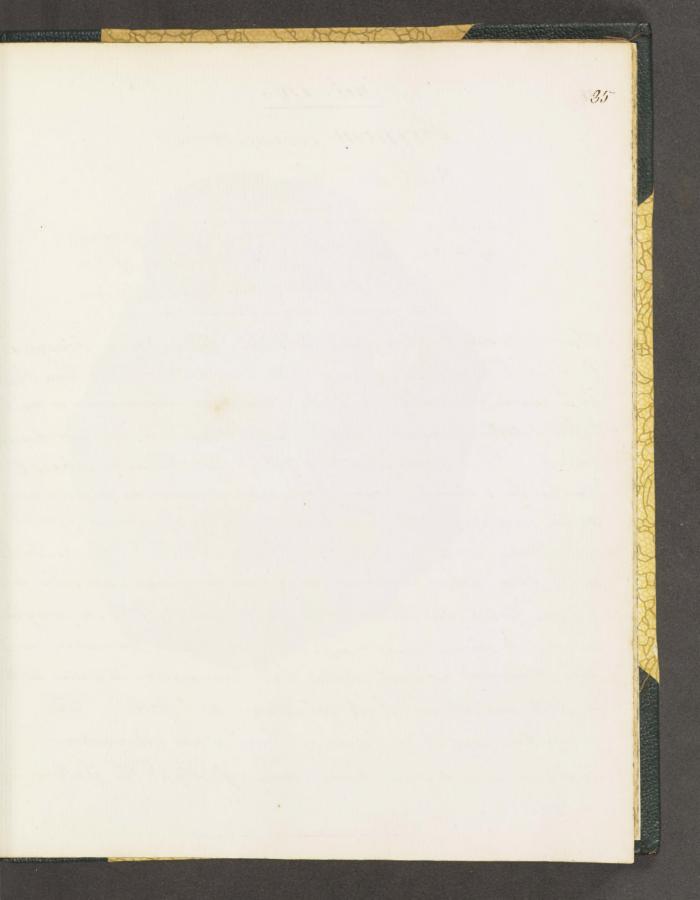
Austrie Arsenie alloyed with From. Hin 2. 256.

This substance much resembles the whitish Iron Syrites or assenced Sulphuret of Iron, I seems to have been partly confounded with the by Kinwan; who observes, that " the Marcasite found near Dublin, called Insh. Diamonds, is of this species." This latter is however to he most reachly distinguish by the crystals being hight-angled, Asmall portion of arsenic may be found in them, but not sufficient to after the crystal?

whereas the present is an acutely Thomboidal frism. Itis perhaps not unnatural for Irish Syrites to have a tittle arsenie, but not in sufficient quantity to charatteine aspecies. The colour is different no the interior; one being a grayish white, the other gellowish. This speumen came from Conwall, I is remarkable for having somewhat ancular ontale collected in devariating tumber, which prevade Blende, Copper Syntes, & Amarta. Byfore the below hipe the metto easily, gives out copious white primes strongly dunted with Gartie, and highly noxious to the hungs; what remains is a small gray globule of magnetic Iron. The Pright hand figure shows the primitive thombordal termination of an stongated crystals, with a decrement when the obtuse solid angle. The face produced by this durement quies for its insidence upon the Thombordal face 149 or thewabouts: This modification seems to be new. as Tany has not mentioned it. The ligh hand Jigiow represents another view of the minutione, with the deerement on the acute angle. which agrees with letter & of Flainy's fig. 13%.



Arsenical From Ore .



· Jab. 116.

Wood-the From Ore.

Olofs 3. Metals. Ord. 1. Homogeneous. Gen. 8. Iron. Spec. 3. Oxide of. Dio. 2. Smitative. Var. Wood-tike.

This speumen came from Bristol found in a ploughed fuld. It is of that variety often called Woodline Iron Ore and much resembles Woodlike Tim Ore. It however is much tighter & Softer, & much Targer than Wood In has ever been found. Its weight is about 7th; & its chameter about 6 muchs by 5 miles. The figure being smaller, the many centres from which the radii form give it a fruitly variegated. appearance, and the radio are relieved by the darker thinks of the strice which are least ochory. The wirder are so regular as to seem found in the drawing . but it is not so . It may be curious to observe how reciprocal the force of formation is in This specimen as each centre has terminated its radio with as little disturbance to its neighbour as possible. The Minitive crystal of Occide of Fron is not yet known; Whatever it is it much have some affinity to the Galena -- Tab. 114.

A STATE OF THE STA



Wood-like Oxide of From Bristol.

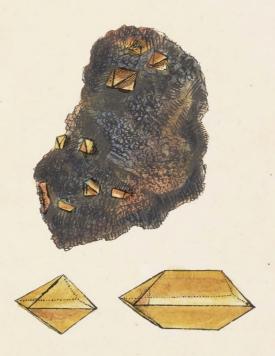
Plumbum suffhatum crystallizatum!.
Crystallized Suffhate of Lead.

Syn. Homb Sulfate primitif P. Hairy, 3.504.

Naturlischer blei vitriol. Emmerl. 3.413.

Nature Vitriol of Lead., Shirw., 2.211.

Anglesea is the only place that produces this substance, it somes from the Parys mine. The finesent specimen is not To brilliant as many, but of the hund is one of the largest. and best crystals get procured. Its fracture in some de. - Tections is faminaled parallel to the primitive, in others otherous. Perhaps one of its characters may be taken from its oclour, which is similar to the smell of the place in which while lead is propared, with a reaction pungency . It is easily reduced on Chascoal ,- The forms are in general somewhat neat, I the orgitals sometimes as clear as the finest glass; at other times they are coloured with an oxide of Iron, from a pollowish to a rusty brown, - They are brittle and Joft enough to be Sorathed by sulphate of Baryles, butnot carbonate of line, and are mostly found on an-Ochraceous ganque.



Orgstallised Sulphate of Lead, or Vieriolated Lead

Firmin vargenizatums, vav. orgstallicatum.

Gen. 7. Iron. Spec. 3. Oxide of Iron.

Oiv. 1. Crystallized.

Gen: Chur. Colour Gray. Harder than most other anetals.

otheratible by the magnet. Spec. Grave 7.2-7.84. Kino.

Capable of combination by collision. Bab. Soluble in all

the acids; precipitable from its solutions, the precipitate

being of a Solue colour, by proficials of potash.

Spec. Char. In combination with above 24 for cent. of

Pyn. Specular Iron Ou. Kino. v. 2.162.

For oligiste. Hair, v.4.38.

The sort of non ones from Lancashire, on which there injetate are sometimes found, is not uncommon. There are also minute quark criptate, frequently very frankfarent, attached to this one; which on the dark ground cleacue us with the social of crystallized from one: however with the help of a line the forms of the engelals anay he seen. The father although a seeming

modification of carbonate of Line, appear to be shight, magnetic. It is union that this should so generally resemble, in the form of its orgetal, the carbonates of fine, This heing time a flattened Equiace with vanion modifications. Some de Listes, p. 4. f. 62. Withe near est Esembling it , wanting only the 6 atternating marrow faces. The fracture is intermediate between glafy and Splintery, & when fresh broken it shows an won or still the bustre. The outside of the Constals are of a charter from with much glop or pohish; the odger of some resemble blind steel, and Sometimes reflect others colours. They stand Edgeways on the matrix; which makes this have more conspicuous, I adds much to the wanty of The specimen especially when magnified. We mesume this is the dame as the beautiful from one from Elba, now first noticed in England.







Tabular Crystallized From One with windescent Edges.

Sab. 119.

Carbo oxygenizatus. Oxygenized Carbon.

Gen. 6. Carban. Spec. 2. Prygenized instances. Gen. Char. Standest of all known substances.

Spec. Char. Combon combined with such a propertion of Oxygen as to remain in a solid state, mostly opaque black.

Syn. Native Mineral Carbon. Riv. 2.49. When This wrote this, common charcoal was thought to be four carbon. it is since found to be an Oxide of carbon, and that Sia. mond is the only native mineral carbon thenown. Mitting description agrees with acide of carbon, for which we quote him?

Show description of Native mineral laston see above, Blende-Thole of Weiner & Jameson salls this Ahole-Blende, & observes That it does not Thain the fingers & so well a greet with the Denbigh coal, that in general his expressions may be made use of This specimen, he observes is the purest hunown and same from Flanders Worme; There is little doubt of the Denbigh sail being nearly as four an oxide of larbon as is lifely to be found. "Its selow is black. Its histre from 3 to 4, approaching the metallic. Transporency o. Hard-neps 4 to 5: brittle: Stains the fingers." It would only be the soften park occasionally that stained the fingers: as in that from Swansen, resembling charred Wood; dusty and with left hister, than above described.

Our bigh to al is deldorn Shatefield, and is apt to de funde with a reedy structure or imfruession, in viregular strice. The crops fracture is often sonchoidal & undulating. This fraction of the somewhat this coal is famous, grac it the apellation of Peacock load; a frie of which may be repeatedly heated and hot & on looking the wolours athern. All wals commonly so called produce a black founder.





Denbigh Coal.

Tab-120.

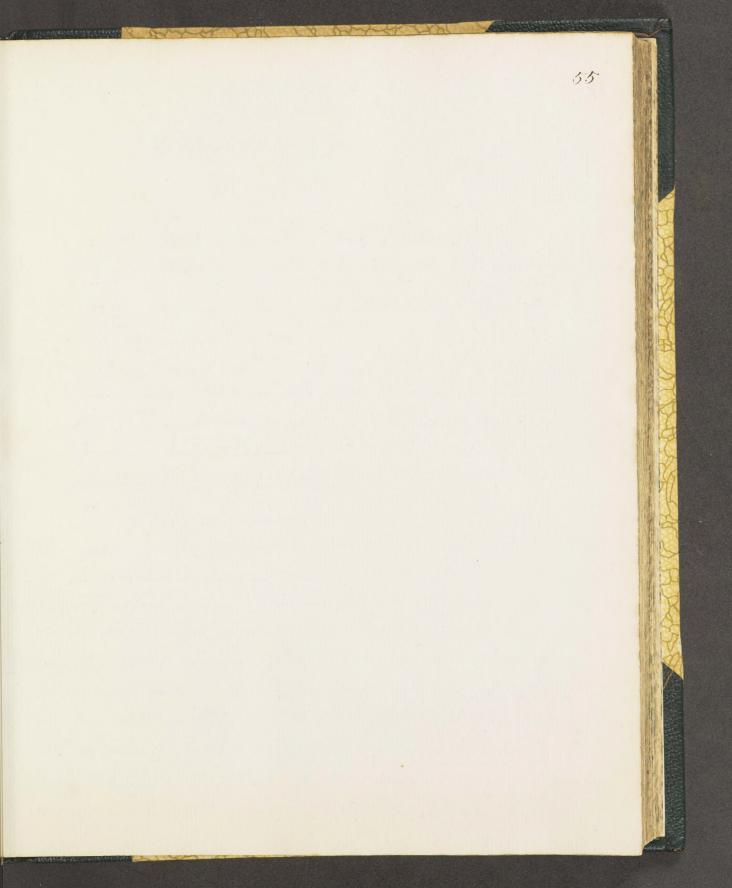
Carbo oxygenizatus. Oxygenized Carbon?

The Iwansea & Denbigh wals are marly allied This Upper figure has the Charcoaly & Stratfiel part in. various duritions. Some parts resemble burnt than in re--quelar Lows: others form conscal appearances, converging or diverging from a centre. Some in horizontal & oblique Thata. The shining hast has a shattered & confused appearance. Some of the Strated parts were slightly covered with thancoal in fine dust, easily wibled off, In other harts were Thich lagers of charcoal in overgular Strata, but somewhat horiental to the other parts. all looking confused. very britte and easily shattened to preies. The lower frice is much tougher, and the thire have not a vertige of charcoal about Them, nor will they stain the fingers. They are difficult to squite; & born without flame, remaining a long, and giving great heat, without much apparent change: whence they have been called stone load. They are med for malling. I burning time, I often mixed with such to all as easily flame, to afish in hurning. They are sup-- posed to contain les any gen with the larbon than other boals so require the afristance of Those which contain more.

Dramonds require oxygen to afrish their burning, in the propor - Tion of 4 parts to 5 in a strong heat; & in burning they That into the black state of Charcoal, continuing to burn the it, and giving out carbonic acid gats gas (see description. Tab. 03.) It is found nation in some caverns, wells and mines, I is called choke damp of the miners. It is often fatal to them) in the dame way, the carbon being derated by the calorie or matter of heat. atthough Gramond has always heen of high value, and well known from the Swithist ages, yet it was left for M. Tonnant in the year 1796 to prove the to be a pure carbon. See Phil. Frant. 1999. p. 123. There are other sorts of loads about Iwansea men. Thousand in another part of this work . Coals mostly appear to be The combustitle remains of vegetation. They are mostly formed in The Strice of plains, composed of marle, dand-- Mones, I princestones, most of which Thow the remains of an. Smal or vegetable protripations, or imprepion. See Sand - Stree Jab. 71. The blackened fracts in Those figures we ap. havently the remains of beturnimous corbon, as it were in the fast Stage of supilitration.



Inamsea Coal.



Bitumen Gagas.

Tet.

Clofs 1. Inflammables . Out 2. Mixed. Gen. 2. Bitumen. Spec. 1: Bituinen with Exygenized carbon.

Spec. Char. Bitumen combined with about 30 per cent. of

Oxygenized larbon.

Syn. fet. Kina. 2.64.

Jais. Daubenton 30. De Born 279.

Variché du Schlahiges ordpach. Enmert. 2.50.

Jayet. Hairy 3. 324.

Bitumen Gagas. Sinn. Syst. Nat. ed. 13. 1.3. p. 111.

The remains & impressions of Shells about it it carne from Lowestoft where amber & arrivers felbler one found. We shall consider fet to have passed from the remains of some sort of wood, as the ligitious fibre is in some instances seen; in other specimens it is so condensed and compact as not to be discernible. This substance appears also to be saturated with betimen, so that it readily inflames, lasing about 14 pains no 20, with much smoke and a slight betiminous solour. The remaining linder, if continued to bourn

Leaves a very befling resideum. Thaque black. powder alway, brown. Takes a fine polish. It Inface when withed is electric, which distinguisher it from cannot coal. It may the Scratched by common calcarcon spar, I will itself Scratch amber and gypsum. The fracture is conchoibal, Occasionally retaining that of wood. Lustre 3 to 4: hans parency o. Let Spec. Grav. 1:104 to 1:744 . Rino. It has generally been said to swim on water. This pring, endeed, facil highly on the water will float for a short space. Linn. called it Brumen Gagas, from The Twee Gages in Lyna near which it is found. The presence of shells and the impression of the forme- Ammonis, inclicate the former les indu. -rated state. The lower price has some signs of minim. - bent Shata having been on the upper surface, in an ob-- Tolete unfresion, and also some observed engetals of carbo-- nate of fine underneath. The frontiere is in part largely conchordal we may observe the woody Stratefication . Towerly has a puice where the woody texture is evident, with small entire posites on one side . With hear I water he decomposed a bit of the so as to achose its woody structure. It comes very near to the most indurated Bowly load & Switherbrand These also froduce brown powder) coidently helonging to that division.





1-51

Jet, with an impuession of a Come Ammonis.

Sab. 122.

Calse supphata.

Crystallized Sulphate of Lime, or Gypsum.

Glafs 2. Earths. Ord. 1. Homogeneous.

Gen. 3. Lime. Spec. 6. Sulphate of Lime.

Spec. (har. Lime combined with sulphuric acid.

Syn. Broad fohated Cypsum. Hind. v. 1. 123.

Gips et Thavencis. Enimerl. v. 1. 527. 540.

Chaux Sulfate Fragezienne. C. E. P. Haiy, v. 2. 207.

Naturn Schniks. Linn. Syst. Nat. v. 3. 91.

Shotown Still, Oxfordshire, scens to afford the clearest and cleanest specimens of engetablished gypsum in the greatist variety: They are mostly found in a clayey gangue. The apper figure is what Storing calls trapession.

me. Although this would by extending the lateral faces,
which anight be easily done by futing plates on the

Summit, each smaller than the last, form an ortai.

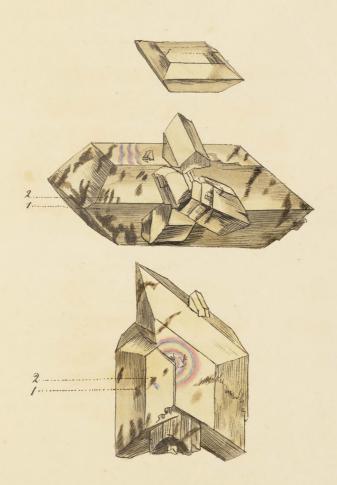
Arms get of a great many varieties see howe not at.

Served this modification. The middle figure is a som
mon variety from the same place, heightening towards

are retaidson but seldom extending farther than this figure.

They often have their ungles a little woregular so as not To meet: See the left hand corner near figures 1 and 2, also having other crystals Thehing in them in different direction. If the tamina are opened in the manner of a How or crack, when not too wide, they admit the prismatic Tags: See the upper rays face of middle figure and mid. -de face of fower figure. They are said by most to admit of double repartion. This 1. is a darkish shot of clay of Soil naturally in the subject, and fig. 2. is the same seen a little duller through the other face at the same time. but this is common to all transparent substances. It is Somewhat run ous that the clayer Shipes or shots have a he-Culiar direction diagonally to the acute angles. Spec. Grav. 2.2642 - 2.311%. Alino. & Hairy. They are farminated, the famina Somewhat flexible; casily separated. Hardness - Wilds to the finger nail.

The bottom figure shows three engstals mixed together, and forming what is sommonly called a matter.



1-67

Constallized Sulphate of Line or Cypsum.

64.

Strontial carbonata.

Col 2. Earths. Order 1. Homogeneous. Gen. 5 Strontia. Spec. 1. Carbonate.

Dio. 1. Bystallized.

Gen. (hur. Soluble in 200 parts of water at a temperature of 60,° Separates from a Saturated Solution in nitro acid, in the form of Thomboidal crystals. Promotes the fusibility of most other earths. Most of its satts tinge frame red.

Spec. Chav. Sombined with carbonic reid.

Syn. Shontian earth combined with fixed air . Kim.

Shorting barbonate'. Harry, v. 2. 32%.

This surrow mineral was found at Strontian in Scotland in a lead mine which is now giver who, We do not know that it had been found any where else. Its crystals are wonfusedly grouped, more or less deverging from a centre. They are sometimes of a 6-sided friend, vide Stairy. This came from Norwish . It has 6-sided friends terminated at one end with 3 faces, resembling those of larbonate of time,

with the obtained agrices termination. We have a shewmen of with 6-sided bars quite relieved cropsing a hollow. I faus of the prism are generally broader than the other 3, showing faint fongitudinal strice & fractions parallel to them; but most reachly to the 3 broader faces with transverse strice, which con hime to the apex of the payramid, & oursemally form an equilateral mangle. The payramid may be divided in a direction contrary to its faces; therefore the mucleus is a doderaidron with thombordal faces.

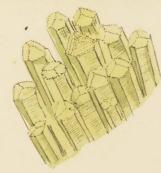
They wary in whour from a brightish watery green to a palish known. It differs from carbonate of baryles (with which it was once confounded), by its weight, as well as by difficting quickly, I with great effervescence, in nitrie and, without leaving a precipitate. It is curious that a bit of baper or a wich of a candle dipped in this totalion, after being dried, causes the flame to born beautifully ted; of the Sabstame itself in fusion by the blowpipe will do the same thing. Spec Grav. from 3.4-36/5. Hardness thing. Secretified by fluoto of Lime.

Analysis by Pelletin: Strontia - - - 62. Carbonic Acid - 30.

Water --- - 8.

It is autompanied by carbonate of hime, sulphweet of barytes, sulphweet of lead, & harmotome of Hairs, or Starorolite of Krivan.





Crystallized Carbonate of Strontia.

1/05

Tab. 124

This variety is of a gellower him, and appears to be splitting and descriptoring, as it seems to decay at the edges, becoming sounded as if some by saygencies ment. The gangue is chiefly a black Oxide of lopper. Its Spee Grav. is 3.1212.



. Ufellow Oxide of Uranite verystallized.

Pelex magnesiatus; var. amianthiformis. Amianthus.

Con 4. Silex. Spec. Magnesialus.

Spec. Chav. Silex in wombination with Magnesia.

Syn. Amianth. Hino. v. 1. 161. Emmerl. 1.402.

Jameson, 1. 442. Wein.

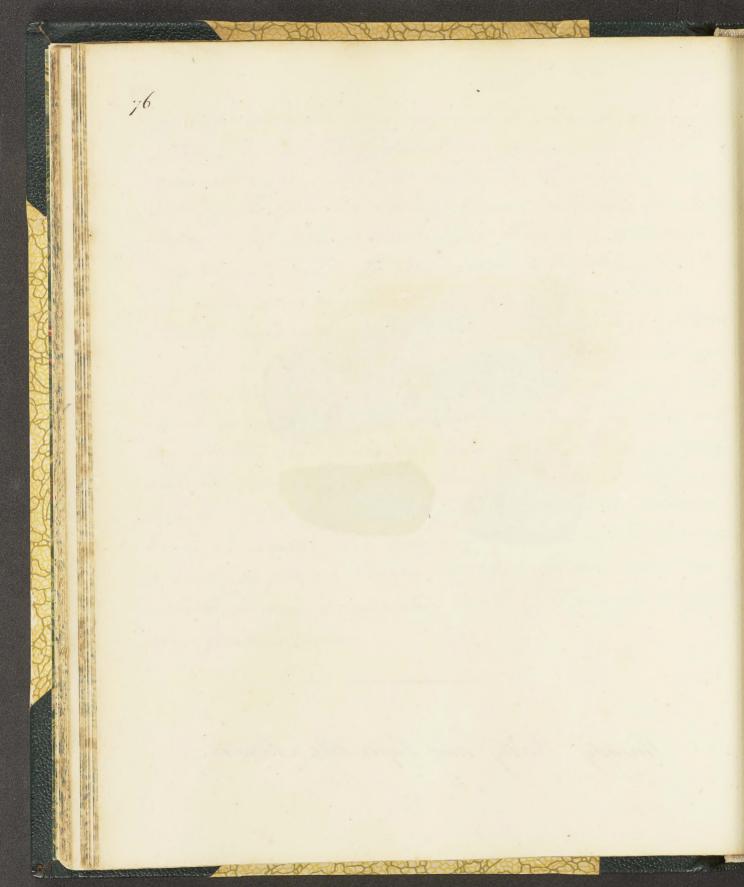
Ashesto. Hairy 3. 245.

Amianthus is probably a decomposition, or change performed perhaps by some yet unknown chamical agent, as its wheating in solid roches seem to evine. This unknown chamical agent does not appear to be common, as the Amianthus is not an unwiersal substance in the selling framentous form. This came from Portsoy. It is partly what is called Mountain look in a rather dense state, including some very fine transparent larbo dense state, including some very fine transparent larbo hate of Line, in which there are tetremely stender planents of Amianthus, summingly passing through it, and in some parts so micorporated on it, that it is

not to be discerned when they end or where the Carbonate of Lime Jugins. The felaments non perpendicularly to the more dende or cork-like surface of the replied fower siles of the specimen, which however has more of a coling texture, but that is much fine than any cotton or regetable thread; the first seems infinately fine; The latter may be seen by a minoscope a show a finally confirmed hollow filament & I was highly pleased to find in M" larlister Grooman lecture read to the royal Society, Nov. 8. 1004, that he had determined the final file -ment in musicular flish. I had been much purched with the afsertion that Lowenhock had found them infinitely Misible: having long time taken the pains to examine a frice of Mutton flesh, Sound the Smaller fetuments enorly disurnible, and according with M. Carliste's accurate amount, as far as I examined, but they are not so in Ashester ar any filamentous everth. It generally is found In Sorpentino rocks.



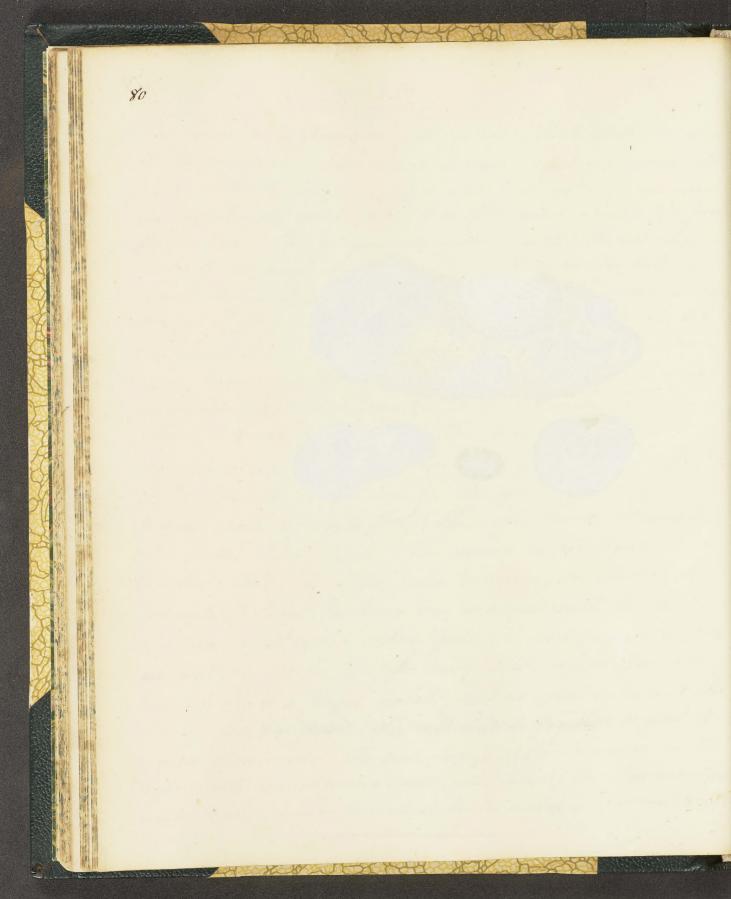
Thready, Woolly, and Paper-like Ashestos.



This forms are appearance not untithe Moder, with the green Oblante umong it. When it has a more perfect appearance of moster without the micew, it is considered as good manure. and provincially called Goult. it is often found about a foot from the Swiface. This is generally used to make the best white bruhy of in Cambridgeshine. That with granular tale or Monte is of a shell here, & found duper. The Jame outstance Tomewhat more compart is called Mulatto Stone: See tab. The perifactions in this Stone appear mostly dark brown with rugose lamps of various dies of meads the dame substance, Somewhat similar to the Swampy From One of Think, 1. 2. 183. The petry actions are coloured time it, Sometimes wasty approaching that of Synter. These fuhifactions are the round one on the left hand, supposed a punder footh of some fish; The right hand is considered as a fisher bony palute; the middle uppor figure is a bevalue thet, The upper value remaining in the state of Partionale of Line, the lower one browned with the one. It is a faind of Amonia called Gryphite, very frequent among petrifactions, on the left refler under that, is part of a loral, near which is a fishes parate, such as often extends to The form of Lufin pod. The lift hand figure is part of a torne Ammonis. The mode bump of the brown one on the Toght, with the adhering Shells. Who those of the Amornia Ique. - mula, found suching on trabs we has the impreficion of a small Graphite



Chlorite with Sand, &c. Cambridge.



Tab. 127.

Calx carbonata.

Fasiculated Parbonate of Line.

Dio . 1 . brystallized .

The representation of a regular brystal so nearly formed by a bundle of special is holy oursous: and it is generally found that they have an other randows or brown with with an opaque glaneous affectioned, metally contrasted with the bulleancy of the Quarte on which they hie. This is the sun-direction of Durbyshine, and is found at a considerable depth no the ground.



Institutated Contonate of Line on Quarto.

Sab. 128. Pilex Mica. Mica.

Syn. Mica, or Musiony Tali. Khiw, v. 1. 210.

Mica. Hairy, v. 3. 208.

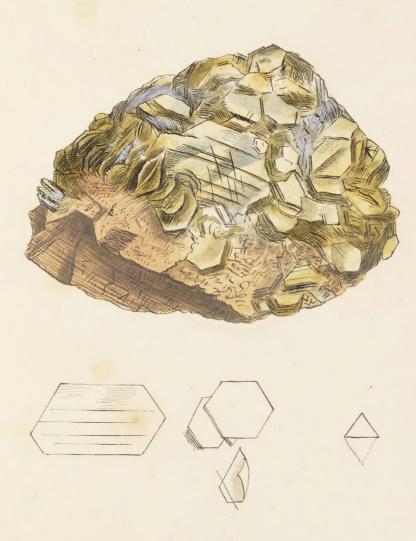
Mica membranacia. M. faminosa, &c. Linn.

ed. 13. t. 3. 38.

Ghinner of the Germans.

Mice, pexxòs, or pexpòs, has been long noticel as a glittering substance, and often sower to countenance the idea, that our strucks are poured with gold, & silver. It is one of the first theing, that takes the attention when fragments of the grantle since from Aberdeen, are bying in our the grantle since for paving, or building, which has been frequent struck for paving, or building, which has been frequent some the improvement of forming such durable stone since the improvement not much with shape for that purpose; an improvement not much solve halp a century old it has been confounded with Take. She tab, 130 . The present specimen has most of the share after belonging to this very surrous substance; It has signs of the integrant molecule, a tet briedral, prosen

whose base is equilateral, and of the thomboidal prison formed of two of these its primitive with various lengthened thomboio, heagons, &c .: de figures . It Sometimes has the farminde bent. Its histre is of the Thangeable hind; the upper plates Showing the accumulated refracted silvery opacity between Those hereath, each plate being transparent if Teparated. I Its fine buthe we cannot instale without pasard of the Colour changing; we therefore much request our friends to consider the Thining parts of the plate as of a fine Silvery or pearly histre. } It is plexible and clastic; the plater when bent, will return to their places with a considerable Spring; see bottom figure, a plate hent thus much will return - the Straight fine Seen through shows 1to transparency ?: this elasticity, and its being destitute of unchosity, distinguish it from Tale, as hitherto the sarreties of one species have been placed among those of The other by several mineralogists. Muscory Take of the older authors is undoubtedly Mine, so mamed in son. - traduction to Venetian Jale; which, although nearly allied, is get a distinct species, and may be booked on as a good sample of Jale.



Mica in Plates, &c.

This Specimen differs very title from the Mica from Must Tony which is oursemally found seem feet in chameter. Scotland & tornwall, produce it Three or It wiches grave, or even larger. This hand of Mila is used for Lantens &c. and is very convenient for Ships, as in hears the explosion of cannon without cracking. It is however bable to get diratched, and becomes tather opaque by heat; which spourty is not removed by water. This substance is spoken of as sitroduced sito home in the time of Seneca to admit fight with their apartment; but Agricola consider ed what was then used as a plaister-stone, It seems to have been used in Agreeofa't time to shether plants; in which case it would be much exposed to meather? Interhate of Line, tab. 122? Saying that although it was not affected by the heat of Jummer or cold of Winter, you wet wasted The tonside why. Sulphate of Lome is found in France in trystatitud maper sufficiently large to form, when Split Last, Iguares of many mehrs chameter. The name Take has been applied to any faminated substance. Mica malested by Variquetin was found to contain.

Silica 50.0
Argilla 35.0
Oxido of Iron ... 1.35
Magnesia 1.35
Lime 1.33

Lofs 94.68 5.32 100.00



Mica somewhat columnar, &c.

Silex magnesiatus; var. amianthformis. Leather-like Amianthus.

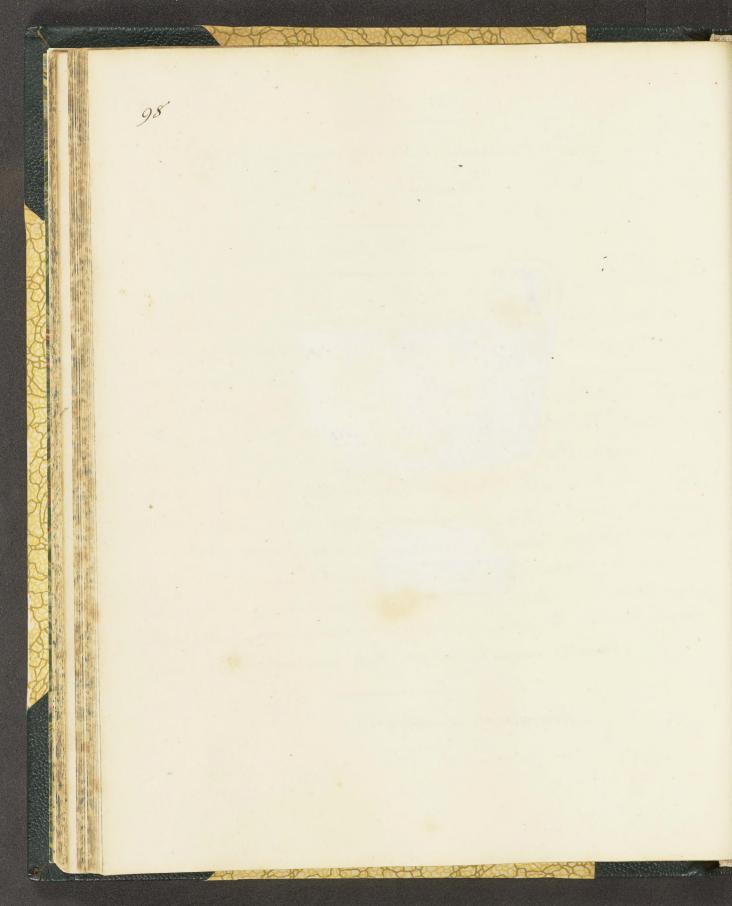
Div. 2. Smitative.

This hears a strong resemblance to the Oak Leather or Dylostroma Giganteum of English Things. tab. 358. So as hardly to be himown by cultivard appearance, unlife with a miroscope; when we find the one formed of exceeding fine of exceeding fine of exceeding fine of exceeding fine filaments, I the other of hollow fitaments. They are both elexible like leather, and to the Touch equal by soft. In authory they require much the same force and sharpness of the instrument; they also than meanly aline, with a shaggy planentous affectione. On very aline, with a shaggy planentous affection but of older most appearance when taken from the foie; while the other farms appearance when taken from the foie; while the other farms appearance when taken from the foie; while the other farms appearance when taken from the foie; while the other farms appearance when taken from the foie; while the other farms appearance when taken from the foie; while the other farms appearance when taken from the foie; while the other farms appearance when taken from the foie; while the other farms appearance when taken from the foie; while the other farms from the southerned or a fusee, or the the Spunk freeface.





Mountain Leather:



Uraninini oxygenizatum. Oxide of Uranite

Gen. 3. Metals. Order 1. Homogeneous.

Gen. 3. Manium. Spec 1. Aggenizatum.

Dio. 1. (rystablized.

Gen. Char. Dark browninsh gray, dull, soft, brottle,

Spec. Grav. 6:144. difficiently fusible Soluble

in nitive acid.

Spec. Char. Combined with a large porhin of Oxygen.

Syn. Uranitic ochre. Kino. 2. 303.

Grun Uranera. Emmerl. 2.584.

Urane axide. Hoiny, 4.283.

Man mica. Jameson. Veranglimmer. Wermer.

Cormoall has produced this suits and but very spaningly. It is mostly imported from Bohomia, Sasha in the Bannat, and Sasony, on a ganque composed of Pech-blende in a decomposing State, and was first disco-vered by Ataproth in 1789. It has been confounded by many with Muniate of Copper, I with Green Mia. Burs was tabelled as Monate of Copper from Cornwall, and it appears not to have been well honown when

Mr. hashligh published his first hast of Speumens of in Bontish Minerals, &c., for it was there called "Thin 4
Sided Crystate of bright Green Copper One from Carhairach."

Mr. Thinwan informs us of its being first taken for Green

Mica f by Wenner, and afterwards for Calcolite.

The matrix of this specimen is Quarto, Arsensate of topper, se. Under the blow pipe it andto, heroming

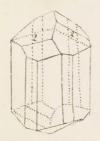


Green Oxide of Abranite crystallized.

berhaps one of the most unions weumstances which pappins in this substance, is that of its injetate maching, which here they do, according to the leteral Sense of that word, as distinguished from the himitrope. & Constal one half of which is turned whow the other. - Hairy & this came from Aberdeen. It is part of a large Crystal; which includes some Quarte La few Sparks of their, appearing at first a unde mis- shopen portion to which Thave added the outline for explanation. The by that is formed of two similar palues of different crystals, tocked as it were into each other; - see the Light ag fine No. 1. The lower left hand figure represents a Angle crystal, in which the same faces are seen as are mentioned in tab, 21°; the largeth terminal face being The fimmitive one; but the small faces are queatly mineased in site. If this orystal were divided in the middle in the direction of the dotted hime, I one half furned yound, it would not be in the hast changed in form, answering to Hairy's Elmanh, 3.60%. The night hand figure is formed of & halves laken from the Camilar dides of 2 different orgotals (or, which is exactly The Same Thing, of two prices tast in The same moute) each exactly corresponding with one half of the lift hand figure. In this the finitive face is divided into two parts. and each part is brought to correspond with part of a secondary face fig. 2,







Maded Crystals of Feldspan.

Siles Quarteum.

Flints

Gafs 2 Earths. Order 1. Homogeneous. Gen. 4. Silve. Spec. 1. Quartz. Dio 2. Smitative.

This coralloid flint was found at the bottom of the Chath cliff on the casternoide, at Bottendean Sufue; It is generally the nature of flints to be formed in Some shape expressive of its having been in a state of Solution, for although the is in a sort of statactite form, running like a gelatinous outstance, get this always in a hard state, and bookens if it were al-- most recent, atthough it may have been many ages in the same state Sowerby has a pine of loral from Bristal, which has flint & some Caludary passing wito the intersteries. The figure No. 1 is from Suffer Nº 2 Sout him by fal! Walford -Nº 3 came from the Isle of Dogs. No 4 shows the moide of the same, Not prihed up in a gravel

fut at finnington. Some have considered these as parts of Mushrooms, such as Chonels, &c petrified, some like marrow bones. others taken for a petified Agarians, thoroing, as it were, the impreficions of the edges of the familier, 3 or 4 miles in dramater and 8 or mine in wumference.



Imitative Mint Pobles.

Jab. 134.

Silex Takum!

Jali.

Dio 2. Smitation, in grains.

When the is found in a state as if it had suffered a change after poxing with the original rock and with the remains of other Subjects and animal exuvice, it afumes a new appenance. Thus it is found heaped in abundance in shate that sam to have originated from the fragments of rocks, as in the Sandy made & called there green sand of many parts of Somer setshere, xc. The upper specimen came from Stourhead . The Shell is formed of Lime, and the sand had dome fragments of hime amongth, probably comhosed of broken shells &c., while the Chlorite is interspected Jorning dark green sheets, The Shell is worriouly divided by 5 farge ridges, retween earl of which an 3 smallones. Sowerly found dome sand nearly of the Jame nature at Chartton in Kent currously mothed or stratified with Chlorite: See the under figure; Woodward mentions queen Wh Sand from Woodwich, p. 11. D' Clarke & M. Warbuston from given Tow! Some sandy Lime from Castle Hill mar Cambridge, where it is very abundant, Liontains many petrifactions.



Chlorite Sand, Weltshire and Charlton.

11/4

116.

Freum oxygenezalum!.
Oxide of Iron!.
Dio. 2. Imitative.

This sperimen, at though generally speaking it might be called an Samatilie Iron bre, having most of the those -actus belonging to it defurs from that Substance in not being shated & in having more of an earthy fracture; the may however be placed near the Hamatites. Whether it is is cash or change after crystattesation may be difficult to deter mine. The hump at foish looks the a globular Sulphate of Boughts (see tab 160.) with the plated or tabular brystats Standing edgways, but these are probably derived from the decomposition of Pyrites; they are however each of Them so much blistered or covered with bubbles (see the right hand side of the lower figure, tat. a formation Journon to many Hamatitus) that they cannot be made out. The Hollow is bined very thin-edged, pro-Tably tabular, Crystals, belonging to those of tab: . Then. are towered with a dark red or somewhat ournson howdery glimmer, sharhling who that of tab 165, and . .

The Stath, or hower part seems to have been cubical From Egrites: see tab. . and . which are externally rowered with bubbles. proportly The whole once formed a Sulphuret of From or Syntes, and having took the The Sulphur has become a mere acide of Iron. Such fortutous cornenstances as this was formed by, Sometimes quie the Shapes of pears, apples, lemons, &c. which are as highly valued as if the petrifactions, and are very often defleat to be accounted for, especially by those who have not seen a series of specimens. This specimen was found about the year 1799 near Saunton, about 5 miles from Powerstone Lancashire, where I maller balls have been found with the appearance of the wines part of this, which has been called relocty, downy, &c.



Red Oxide of Iron. Lancashine.

(D: Buchanan, whose researches in the East Indies on well known, brought some of the Breein Book, from Callender in Scotland, in which were found pebbles of Heldspath. To heldspar of this description has not been of mentioned before Sowerly was gratified In having the power to show it here, where he has added Some other amorphous Geldspar, hinown by the name of Petinse in Scotland; found in various parts of the Pentland Thills S. W. of Edinburgh . This is of some Esteem in manufactories of nonetain, being a funible Composition of Siles & Alumine, but varying in the proportion or quality. It often disappoints the workmin That gather it, as well as the manufacturers, and Quant nearly have has been dent to them as Petinse, especially for the white or gray sort, which has least from, and would consequently be of most value for their purposes.



Petuntse.

Sab. 137.

Argilla dictrica.

Townshine, or School.

Cafe 2. Farthes. Order 1. Homogeneous. Gen. 4. Argilla. Spec. electrical.

Syn.

Townaline . Hvis 1.271.

Le School . Broch. 1. 226.

Schwarzer School. Emmed. 1.95.

Townsaline. Hairy, 8.31.

Borax electricus. Linn. Syst. Nat. sd. 12.1.3

This substance came from Penkame. Some curious twenderiear varieties of it from the Logan Moch. Some from Devenshine. This is remarkable for the Pargeness of the logstals & Crystals of this are found more perfect at the Brasils, in Spain, Switherland, &C. Though they are Somewhat confused; but more so the from one end passing by fine Throught fibres into the Quarts which accompanies it, giving it are appearance of a termination. The englished end is shown at the upper part of the

geometrical figure on the left hand of the plate, and the other end on the lower part of the same figure in fibres.

The other figure is one out of a gangue of Mico from the neighbourhood of therden. These brystals are not very regular, but are remarkable for holding some harnets, embedded in them; see the lower figure. Tournaline by some is said to be distinct from School, some think them only varieties of each other.

Townshine generally fresent straight frisms & Sis John to said to profit one crystal without a from - agreed variety?

mostly blackish or clark-coloured sometimes showing a greenth or brownish colour at the transparent edges or flaws.

The specimen from the Logan hoch are greenish, but how

mobiled in Mica brownish. Some forcegon specimens are

temblicable for varying their colour according to the direction in which they are vecived. Tournaline is well known

for the electrical properties. The crystals have mostly a

tick plots, are smoothish, with anome or left numerous strice

placed longitude nally on the friend, and brown tally on

the firms, as below observed.



Orystallized Tournatines in the Gangue:

Tab. 138.

Pilex Quartzum Laminatad Quartz.

Div. 1. Crystallized.

The muclei of crystallization often form in plates; but in the present dustance, in should seem that, by some in -terruption of a particular nature in the dissolving men-Amonen, the crystal could not be formed so smoothly. and regularly as is tommon with crystallizing Smarts. and tab. . Shows that it may be mixed with much Jorcign matter without attering the regularity of the crys -tallization. Thus the present subject is the more remork. able. This Sort of Quarte has been found pretty for -qually at Glafsteening, in Conwall, but I do not know If it has been found elsewhere. It has often Tin and decomposing Sulspar about it; and whether these or any other decomposible substances have been originally formed with it, and have Same caused its decomposing as seems to be partly the lase with the public at tab. wither way it is a curious ourumstance, and may lead to some weful buth in the westigation of the nature



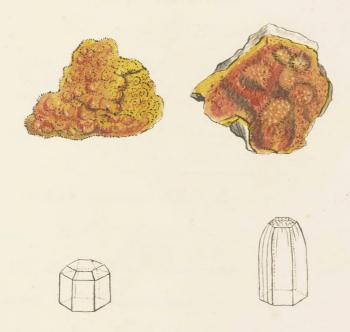
Plated Quarte.

Sab. 139.

Elumbum phosphatum.

Class 3. Metals. Order 1. Homogeneouis. Gen. 14. Shumbum. Spec. 2. Phosphatum. Div. 1. Grystallized.

This work. These beautiful Sittle specimens show the yellow and oragogn varieties, and two different modifications of the column see orgetals, one bewelled on the horizontal edges of the column see the right-hand figure), the other rounded on the same the right-hand figure, the other rounded on the same edges, approaching such as form spicula, formed of spiciolar edges, approaching such as form spicula, formed of spiciolar side by side by side in which we see an example of orgetals side by side, by which we see an example of orgetals forming of Spiciolar or lengthening in their modification forming of Spiciolar or lengthening in their modification of spiciolar, which often happens, according to circums of stames, as other substances do in plate, as has been smooth commonly observed. These spicionens came from model commonly observed. These spicionens came from



Crystallized Phosphate of Lead.

Buryles sulphata; var. stellata. Stellata Sulphate of Barytes. .

Dio. 2. Smitalive. Syn: White semi-pellucid Spar! Woodward, 88. spec. a. 16.

Starred waren-vein. Grew's Museum, p.312. Lepastrum. Hill. Js. 146. tab. 2. Auc. 1.2.

This Substance was once taken for bypsom, or Sulphate of Line; but is since found to be Susphate of Parytes. To those that examine the installisation it will be casur distinguishable, than by any other exter. not character that we funow of.

These varieties of Sulphate of Bangter are chiefly found on the Wistorn side of Sheepy, in Thent; The marly cliffs of that place, perhaps raised by the delinge, and full of a great variety of antich luvium telies, have been for years falling down in small or large maper. And from Thise cliffs are to be seen sumps of mark from the The of an Ismich eggi Those about this sixe are some -

when the divisions are lined with the yellower carbonate of hime, they have a more aft resemblance to eggs. To secural feet in chameter; in which these Sulphates of Boary ter are concealed till the maper break to fear pieces. The larger humps (commonly called Septaria, and for merly Luclus Relmontie)? mentioned in another place? most generally contain them in greatest perfection among the divisions or sort of cracks no the institus.

For represente of hime, or waxen wein, as it is rommonly called, which fills up the divisions, and the Lopastic one generally fixed on the calcarous partitions, which are often crystatlised, varying in colour and thickness, and number of coats. This specimen is remarkable for having a star on the stile, placed immediately on the argillarious marle, which is represented divided by the carbonate of Line.



Sellated Sulphate of Barytes.

Call carbonata; war. inversa. Inverted Carbonato of Line.

Div. 2. Crystallized; var. inverted Thomb.

Now there is much larbonate of Line, as at Portland Island, there may be expected much variety. Thus there are
done varieties of that Sort used for building, see tab. 59. 2

also some of the orystallicul, see tab. 10 y 20% as wall as tab. 142

this mesent specimen is rather a whemsical one, showing

how nature sports, get conformable to a certain regularity.

The fash aggregation of molecules had apparently formed

Nuclei of severted whombs, arranging themselves some—

Thing like an inverted perfamile— see left hand—

figure, tab. 142. The foresent specimen has a great variety

of three sided programids, nearly regular, or with fromi
next sides, see the left hand fower figure, and with

various hinds of bases, as in the other separate figures.



Pyramidal Carbonate of Lime.

Cala carbonata; var radiata. Madreporite? or hadiated larbonate of Lime.

Syn. Madrepor-stein. Journal des Mines, n. 47.

1s. 831.

Madreporto. Haiy, 4.378.

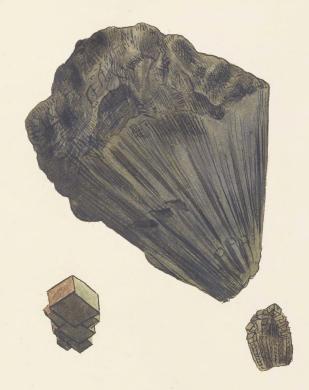
This has been rendered of more consequence, since it is a curious example of the wishing of the knowledge of crystalleration, which we this case distinguishing it from a coral; and might have made the substance called Madrepointe better understood. It is said "The Madre-pointe belonging to the class of calcarcous stones, found by M. de Molle some years ago at hupsback that, in the country of Salzburg, is a stone of transportation. Some specimens weigh from the week, that some

Thieralogists considered it to be the same; others he - hered that it was produced from Madripones; but it discovers no certain character of a primitive organic formation: hesides it has no great a resum--blance to the real Madrepores, that it has theme borrowed its name. It is of a gray colour, composed of divergent friend, brilliant on their transverse fracture, and of a black and chiller colour on the longitudinal fractione. The fractione exhibits a titue. of small bent famina; it is entirely opaque, butte, Yough to the touch, and moderate hardness; the intervals between the bundles which compose it are in part filled with small white leaves of lateareous Spar." There are three or four analysis of this substance. awording to Molli, a hundred grains of it contain,

Analysed by Klaproth, it was found to contain,

50
50
5
50
50

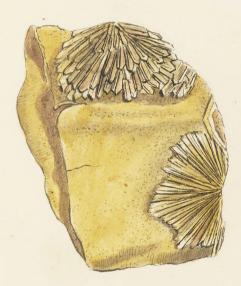
Like the Madreponite at first sight it lookes the Basalt and somewhat resembles a loral, or Madrefione, and Spines one the transverse fractures; vis. on the faces of the primitive thomb which discover it; indeed we know of nothing in the description that does not sufficiently award with ours. The small bent farmine we a consequence of the radiation - see tab. 114 This is an example of one of the dullest specimens of Parbonate of Lime of the orystallied and divergent hind, dulled with adventitions matter. There the variations of the analytic.



Radiating Carbonale of Line, or Madreporite.

Jab. 143.

The Sopashie wary in general form, but not much in their crystallization; that is to say they vary in the height, Sangeness, and spreading of the group. Thus there are it the most general appearances of their aggregated stellar, which perhaps sufficiently are described by the figures. It may however be observed, that the ends of the crystat, generally incline downwards; indeed they are rarely other wise. The freier of Soptanium is covered with two looks in this specimen, as well as the last, but is of the more usual colour. The icat on the left hand side appears to be just forming.



Stellated Sulphate of Burytes.

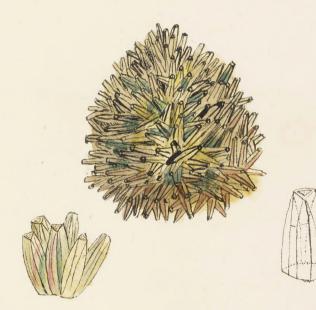
Calo Combonata.

Crystallized Carbonate of Lime

Class 2. Farths. Order 1. Stornegeneous. Gen. 3. Line. Spec. 5. Carbonate of Line.

This curious specimen is from Wantockhead in Scotland. Besides the whole group being formed the a cone, the mide biduals are a curious orystaltization with a three sided column Tomewhat younding and truncated at the apox, and a central defrequin. The sides of the whemm are again divided with 4 fauts, letter understood by the figure. The apix is formed by a 6- sided fact. it does not resemble hard Carbonate of Line. It is formed from the edges of the muleus or fromtine Thomb, with the obtuse angle represents; The farming decrease less than in The metastatio, and consequently form a longer pyramid, which, as it is milined to be rounding, cannot he measured. The mineations nearly on the cohemn & Those on the pyramid que it an odd appearance more Especially That on the apex, which has a rising margin. The specimen Towards the bottom is a tittle coloured with ochracions Vaide of Fron, & in some parts are a few blotches

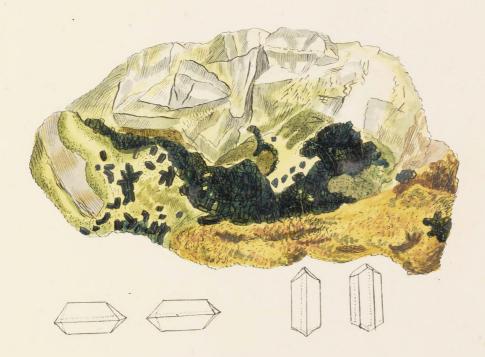
of decomposing Syntes.



Crystallized Carbonale of Sime.

Jab. 145.

In describing the crystals on this specimen I may use the words of lount Boumon, who after speaking if the stongality retails of the other assentate of lopper mentioned in another place, says "The angles of 96" and replaced by a plane which is equally inclined on the adjacent sides, and is spequently very broad. Then the tetracedral prism is changed into a flat hexacideal prism having the angles of 84" replaced, and the others of 188:" The lount never saw the angles of 84 "replaced. "The average speed from I saw the angles of 84 "replaced." The average speed from I this Arseniate of lopper taken on five pure picies was 4.280."



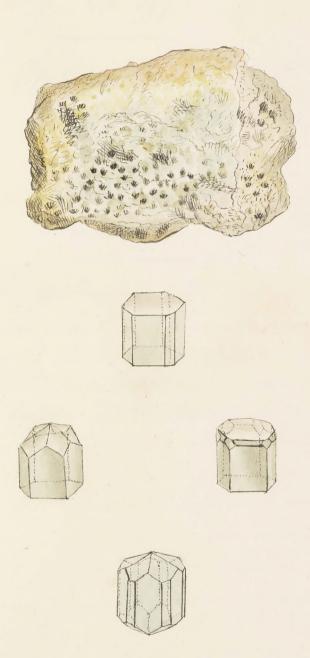
Arseniate of Copper.

Jab. 146.

Calo phosphata. Phosphate of Lime!

Dio. 1. Crystallised.

This specimen shows some of the varieties in the bun. - cations & bevillings of the heacedral prism, from the at fornating tourscated edges - See the replier geometrical figure - to the more complicated - see lower figure. The ganque is commonly talease with caide of Time and with Quarte, Sometimes with Who, Thopas, & yarely white Topas; as in this specimen. The prevolen. quality of Tale often quies it a wasy appearance, & this is huntiar to this rock, which, thus differing from the general appearance of rocked, has been supposed to be I even dold for Apatite itself. Apatite has been confound - ded with Beryl by the Phenrist Fromms dorf, who though it to contain a new earth, which he named Augustino, but now attend. The When geometrical prime shows the mom thencated on the three atternate vertical edges. The Left hand figure below shows an hexaidral pyramid plant on the solid angles of the friem. The right hand figure I how facets that are in the porisontal edges I solid angles. The fower figure shows both ends, forming the alternating paramid, gwing 4- and 6 - sided facts to the frism.



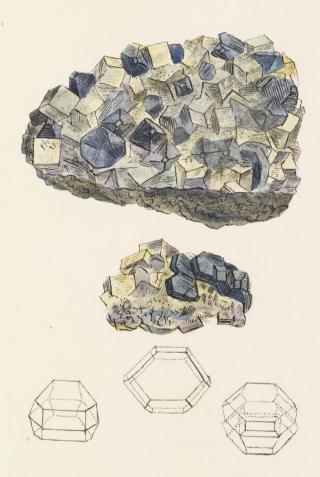
Varieties of Phosphate of Lime, or Apalite, orgstallised.

Plumbum sulphureum. Sulphuret of Lead.

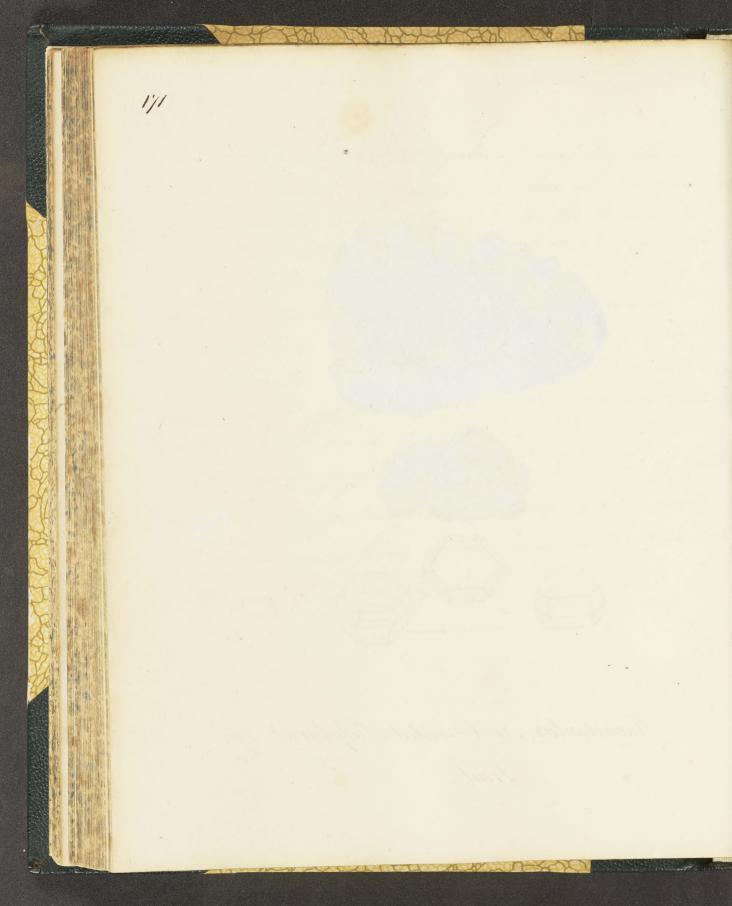
Div. s. (rystallixed: www. (inte-actaiction comprefsed and

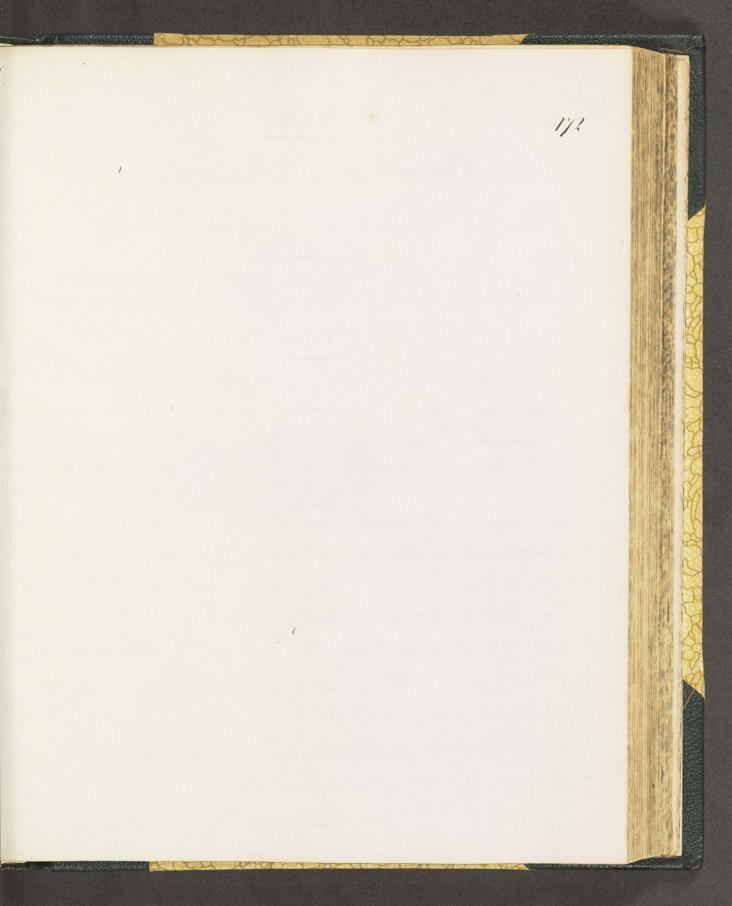
The primition cubic erystals of this substance are seen in tab 87. It is not rare to be the corners bruncated, which we the faces of the octaidrow, thus it paper to what has been called the cubo-octaidrow. Thus it paper to what has been called the cubo-octaidrow. See the description, and tab. 181. It has been lately observed that sufficient of Lead, or Galana, has rarely been found in 6- Sided tables; and those who have the few so found, think much of them on that account; and it is certainly a curious when we see a substance so decidedly fracturing in when the find it forming the octaidron, which is often approaches, and sometimes does most perfectly - that a combination of these forms should be obsposited, and the same time with the of the faces, much broader than the rest, or other 12; vix. Six hexangular faces of

The ortaeilrow, and 6 - rectangular faces of the cube - see The middle geometrical figure. That these should again be be so deposited in orystallining, as for two to much with two of the broader fairs as a basis to each, of the nature of that of the mable, tabigi ; and like that they will meet at opposite angles, as if thermed in an axis. This the 6- sided faces of the octacidral formation, and the right angled ones of the who formation, may must opposite, as at the right hand figure, or attende as on The left hand figure. The upper figure is from the Marchionels of Baths cabinet, and contains most of these modifications. The forcer one is from a specimen in my own lab. both came from Dorby Shire.



Hexangular, er 6-sided Sulphuret of Lead:





Plumbum varbonatum primitivum.

Primitive Crystallized Carbonate of Lead!

Class 3. Metals. Order 1. Homogeneous. Gen. 15. Lead . Spic. 4. Curbonate of Lead. Div. 1. Crystallized.

This specimen is a great unisty, as it does not seem to have been before himson that larbonate of Load crystillists in shoonboidal prisms. Paig sums to think the ordaidron to be the primitive figure; indeed we have been able in some repetitives to trave all but 4 of its fractions; in some respetitive showboidal prism are 76° and 104°; the famine are very distinct on all the faces. Carbonate of Lead, when we find it so nearly resembling this substance, may some be chesiowed by the help of the blowpipe in procuring a little globale of Lead from it on the Marcoal. They both form a nearly opaque gloss : but if the heat is continued, the one will of course be reduced to Sead, and the other will remain unablend,



Primitive crystallized Carbonate of Sead.





Cuprum nativum!

Native Copper, Leaf-like.

Gen so. Luprum. Spec. 1. Nativum.

Div. 2. Smitative!

This is nearly in a pure State, comes from Huchor mear hedrith in Cornwall. curiouly shows how the Copper is held in solution, and the solvent subsiding from it, leaving it in a state to ex--plain the nature of the particles whering, while supported by a sort of reinfrocal quavity in the solvent, which allowed It to expand almost in distinct muclei, by masser in the form of feares (Minerals approach measur to vegetables than have generally been suspected. The present specimen ream - leles the Tums Hispoglofourn, or rescipoliois, in the heaflets soming from the middle of the larger Johage.) The primitive Thomb has not been before noticed; it seems in this enstance to form with the octaidrow; - so the left hand poine. The other figure shows the 2 sides of the plates chiefly formed of shouls. There being oriegular would not be measured. The octavilron -see the left hand fig . - and the Thombs in its direction seem to agree with the native Coppers, and partly modify peaangular plates as they partly do in these specimens, and into consequently double heacechal pryramichs; see tab.



Native Copper formed into Leaflets, from

Pilex Taloum!

Tale.

Div. 1. Crystallised.

Syn. Jak, Nenetian Jak. Kirw, v. 1. 150.

Tale. Hairy, t. 3. 25%.

Chelorite . His. N. 1. 14%.

Taloum viridans . T. lamallare, and many

. others . Linn, ed. 13. t. 3. 51. et seg.

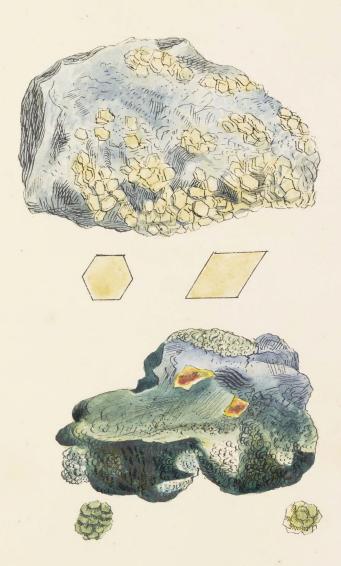
Mica Talcosa. Ibid. t. 3.59.

Talk. Emmerl. t. 1. 391.

infrovements in mineralogy, as it is perfectly confined to a green variety of Tale, found either in small famine. It consists, granular fragments or makes, or deferminated through Quarte, vc. Its grain is sometimes very fine. I find, in this father state it is scarcely known by any one or any green earthy subtance may be confounded with it. Tale and Mica, as observed under tab. 128, have been hell lately much confounded; but M: Him has since more defined it. The Upper specimen came from

Stenna - Gwyn in Cornwall, where it is found in abundance, often holding Shorphate of Line, among Luarte, and decomposing Feltspar; whence the rock itself is often Called Apetite, the old name of Line. Abundance of Creide of The often auompamis it. This is a variety of Tale, agree - mg whith that called Chlorite in every external character except colour, which wistead of being green is that of cream. The tower specimen has the usual colour of Chlorite, which is uncloubtedly to be attributed to a large adven - titious mixture of Fron, which at the same time ten - oters it easily posible. Mica and Fall seem to have The same forms in their orystals, but Mica is not so well defined. These bystals are very soapy to the touch particularly if bruised. The farmina ou eavily broken, and divide in minute greasy scales; which property has tendend this fossil an ingredient in commetics. The white varieties are difficulty pusible. White Tale analysed by Hochfree was found to contain.

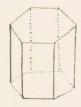
filea 50 Magnesia 44 Argil 6



Constallized Tale, Chlorite, &c.









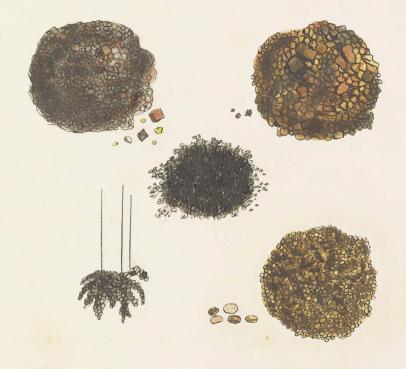
Phosphate of Lime, or Apatite, orystallized.

FeVIUM suboxygenation. Suboxide of Iron. Magnetic Iron Orc.

Div. 3. Amorphous, in Equins.

Sowerby received Some Sand from Hunstanton, in Nor. folk, of a blackich appearances. On footing attentively which he thought attractible from might be the cause of the blackmop & found it to be do. Some was found in a common tooking · bog at Scarborough, Sime when he received some From Sand from Withlow. In examing this it Soidently beliaged its hubitat by minute harticles of -hold , hesiles which it has Octaedral From One more or left axidated and some cubic Pyriter, Pebbles &c. Sowerly also rucived some Anena ponderosa with is called from the Ferry of Ardentenny in Argylohire, where it is found in great abundance washed out of the banker of the Sea. it was frighter with actaidral orgstate, small; black, abun - dant, and very attractible. The right hand upper figure is of the publics and Sand from Thunstanton in

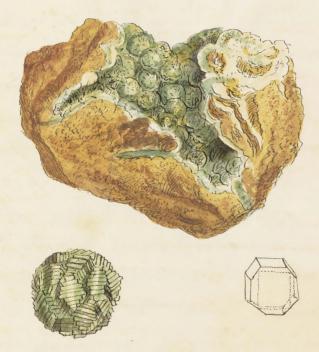
a heap, and the partieles of From of the site generally found, by The Side. The figure under neath is such as is found when the Sea has washed the and out. - dated it. The five pebbles on the side magnified are three common Luarth hebbles, which compose sommon Sand, and this darker, chiefly Oxide of From. The left hand where figure is the Irish. Sand, and the figures on the side show the vataidron Cube, Gold, and Syntes. Beneath is the outline of a magnet, and The Iron in common as attached by it at the base. The middle figure is a. houl Who that from Scattland, or such as has been separated from the other sands. Then it appears that this doch of Sand which was Inposed to be only found in America, has now hun produced from Ingland, Scotland, Instand.



Magnetic Iron Sands from different places.

lines the cavities of a dort of Arang of Thirwan. The Crystals

are also found at Salisbury traing. The substame is cornetimes tound amorphous, as at things Oarh.



Orystallized Prehnite

Terriferous Carbonate of Lime.

This specimen came from Andim mine 8 miles from Bodinin, Cornwall. Curious as some have said Carbonate of Lime was not tokfound in that lounty. The whiter fast of the Specimen is a covity handsome - by filled with crystallised larbonate of Line of a very uncommon modification, being nearly a hex. - ciedral plate with the equiare and primitive bevellings, if they may so be called. It is unous the external direferes of these crystals are whitish and the molde a rich dark brown, as the dash. or surrounding parts show. Jab 162 Bortish Phin enalogy is nearly of the same nature, but under common exposure to the air becomes Wacher. This specimen has many other ownions crium. : Stames of change and position of minoral Industances attending it: viz. The redder parts are a Sott of Carnelian Znarta Somewhat approach. ing Chalcedony, coloured by a rich Oxide of Fron, and this is sometimes covered by lachalon: See Bortish Min: tab. 180

Builes this there are pellow spiculated theles. al. Most orgalallised, rachating, &c. There are to be con as forming over wire Shaped Printes; see Bratish. Min. tab. This has decomposed in some parts, leav. ing the hollow where it has been with enough to show the appearance of a wire as the fraction in Some parts on the apposite side shows; perhaps In may be between Ewen Reisel, or the German Fron flint, and Carnelian. Some gray lach. = alon covers the cornelian in the hollow as represented at the top of the figure. The yellow Lnath seem to be coloured by yellow oxide of Iron, probably The decomposed Pyrites.



Ferriferous Carbonate of lime with calcedony and

Jab. 155.

Class 3. Metals. Order 1. Homogeneous. Gen.g. Copper. Spec. 3. Carbonate. Dio. 2. Smitative.

The upper figure, is remarkable for being on the broken and of a large milling rock crystal. The other stands on the crystallised onch of the rock crystal, I is a much farger specimen; fart of it only being figured. This minicial was find considered as an arsen. I at of copper, but we have every neason to sup.

The specific are unouly disposed the radii round the edges of a thinkish lenticular nucleus.

Both specimens are accompanied by a few onjstals of each variety of arseniate of copper, fig. at Tab. 97.









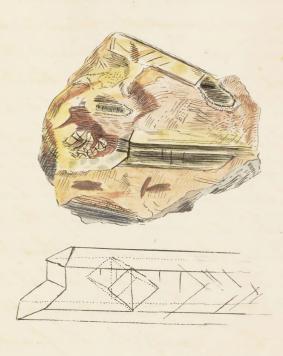
Peculiarly Radiated Carbonate of Copper Cornwall.

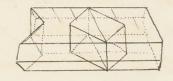
Burylis sulfata. Sulphate of Baryles.

Class 2. Earths. Orders. Homogeneous. Gen. 6. Buryles. Dic.1. Crystallized.

This curious specimen came from Cumberhead lead mine, at the head of Nethan river in Ayr-Show. It is remarkable for the erystallised supplied of baryles being ummersed in amorphous suppliate of barytes. Not having before seen a fracture that undicates the integrant molecule, this is made use of to show the form of one. It is certainly very ravely to be fraction huralled to all its faces, dome of which are not tobe Seen, I'm Should Seem that Hairy had only observed Them by the scentillations within the crystal. To explain the nature of the crystals formed in therefor for figure, a district outline is drawn in the mid - Ale one, including the mucleus, to show its situation. It will be easily seen that the perpendicular face at the left hand end (the faces at this end one all fractured ones) is parallel to the chagonal division

of the muleus, and the oblique fracture is parallel to one of the faces of the rhomboidal prism; the perpendicular fines indicate a continuance of the chagonal fracture, the others a continuation of the shomboidal fractione. These are extended in the specimen more or less perceptibly until book in small mucles, at the night hand end of the crystallitation. The third figure may help to familiarise these Things by its being placed in another position, and showing similar facts. The lower figure shows the geometrical divisions of the muleur into two molecules, by means of this fracture parallel to the shortest dragonal of the showl. Having seen this, we cannot doubt the opinion of Hairy, that there may be a fracture parallel to the longer diagonal, dividing the molecules about mentioned wito two: Their four repright frangular prisons form the Thombordal prison or micleus, each being an integrant molecule.







Sutphate of Barytes in transparent orystals, included in amorphous Sulphate of Barytes.

Scotland.

- Tab. 157. Silex Quartzum? Div. 1. Crystallized. These worrows experimens are said to contain Arsen. ical lobalt. They came from Southering mine, and are rare, on account of the mine having been destroy. ed by the overflowing of a niver. The Quarte are more regularly 18 - sided than will, although. The as it were clogged up with such abundance of a metal, that it offerwise would be nearly obliter. ated in its character; and that it Should crystall : the under such circumstantees, distinctly and at both ends regularly, meanly as if heaped on each other, as in the top figure is very remarkable. There appears to be little else than Arsenical Son among them, but capillary Silver and flowers of Total are sometimes to be seen very districtly about the gangue.



Constallined Quarte said to contain Cobalt.

Tab. 158.

This sperimen came from Hartfield near Paisley, and leads to a curious modification. The orgotals wie as. ranged in double stillated groupsy the radii of each extending so as to meet at the edges, like the spokes of two wheels placed against earhother, contrary to their position on carriages; the periphery of the wheels coming logether; The edge forming one countar face; see the feft and right hand figures. These we growhed among roughish inclistant Semi-orbicular mapses. The colour is not so altreating as the formation being dull and brown wh. This minieral is formed in the cavities of Hragg rock Somewhat approaching Sorphyry. The crystats are nearly similar to those of tab. 153. but the secondary faces being larger, the terminal one is last in an edge.



Crystallized Preprite, a variety.

Sab. 150.

Cuprum orseniation.

Arseniale of Copper.

Class 3. Metals. Order 1. Homogeneous.

Gen. 9. Copper. Spec. 8. Arseniale.

Syn. Bournon. Phil Strans. for 1802.

This beautiful specimen of Ameniate of Copponent of Mountain of Copper.

Bournon as his third variety, "profectly request of their length, and fibrous at their extreminates of their length, and fibrous at their extreminates of their length, and fibrous at their extreminates of their length, and fibrous at their extreminates.

222

This beautiful specimen of Inveniate of lepper luming from near of wenash. The crystals are spoken of by lount of Bournon as his third variety, " prefectly regular for a park of their length, and fabrous at their extremity?" The musent specimen has these crystals with apparently & side of the attackow, lengthened into filaments, and discounting a little from the centre, forming altogether a sort of brown, narrow at the base, widening towards the afex, and terminating a little aboutity in a sharp or angular point. They are of a dark dull green, some explant transferrent, the ends being generally more apague and lighter, owing to their forms nature: some confused: See the lift hand figure.

The gangue is chiefly quark, somewhat plated and ochrey, and how intermixed with it bright green were niste ? of copper in megular granula: See the right hand figure.



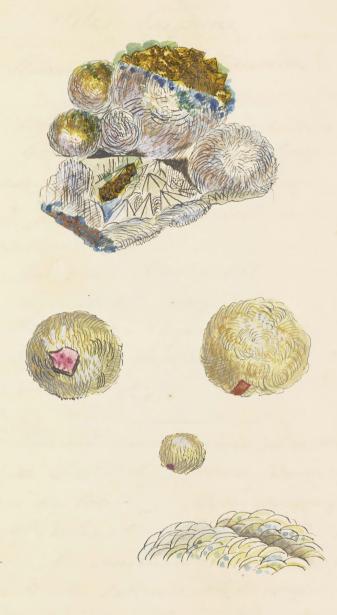
Pencillated Asseniate of Copper.

1-93

Dio. 2. Imelative.

This variety of sufficiente of Barytes has obtain id the name of such among the minew; but for what wason Sowerby honows not It has also heen called tima ponderova. This doch have figured is prequent in Ector mine, Staffordshire. It is not un formmon in other places, but of a left regular sphried form. It is generally anomparied by carbonate of Line, floor, galana, blend, mon, and copper printer, xc. and is most frequently white. Sometimes it is coloured by vaide of iron, I is then gellowish or reddish. The When Specimen same from Ecton onine, and is accompanied by calcareous spar and pyrites of various formed hours. The internal Structure is warfured, farminated, showing dignes of crystallixation, arran-Eged in the form of a ship ophere; these famino are tatiemely close, I often confused, or so thin that no determinate form can be made out having only the appearance of segments of wrenter plater, striking edgeways by the side of each other: See tab. 100.

The whole are sometimes attached by a queator or small. er base, so as to be mearly detached spheres; at other Times only half a ophere or left. Al Broton in Derbyshure, detached balls are found, not far underniath the surface of the com mon earth: See the three frances in the middle. They seem to formed among foam, and partitude of an ochracion his: The adjus one frequent - by mone separated, and less regularly rounded. They Shave occasionally attached to them single cubic trys. Take of Theor in a decomposing state: These are some - what Estated to the celebrated Bolognian stone, which Thines the phosphorus in the dock; I if heated hot in the fire does the same. They are allied to the hver - Stone & found in Adramium, in Scama Which has its name from its hepatic sunt, derwied from suppliment of ammonia, or huir of supplimer. Varieties one found in great Britain, which when Embled give marly the odour of Shink - Stone: See tab. 20.



Sulphate of Barytes in irregular orystallized nodules commonly called Cauk. Staffordshire.

Tab. 161. Seilex barylious.

Hannotome or Standite.

Gen. 4. Silex: Spec. Brugio.

Spec. Chur. Combined with Barytes and Argil, fusi. · ble with a frothy enamel, with a greenish phos-= phoresience.

Syn. Staurolile. Kino. 1. 28%.

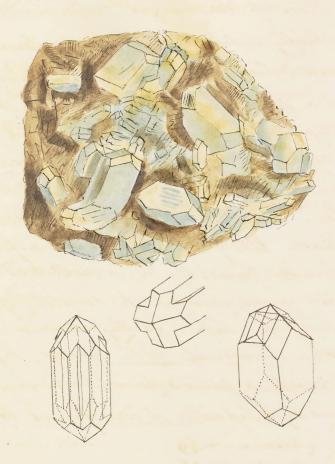
Harmotome. Hany, 3.191. Rreuzstein. Emmerly 1.209.

Hyacinthe Clanche cruciforme . De Liste, 2.299. De Born, 1:79.

British Saurolite has only been observed hotherto at Strontian in Scotland, a place famous for Carbonatiof Shorthan - see tab. . It is generally found on a ganque of Carbonate of Line, which is mostly brytall-- Ked. Its common form is a quadrangular prism, with the lateral solid angles truncated and Torning a 4- tided pyramid, alternating at each. end; or in other words, making an elongated dode. cachon, Similar to that of garnet, but not of the Some angle. Two of the opposite edges of the pyramids

are mostly brunealed, in British specimens. The brystate are generally larger then in those of Andreashory, and more nearly resimble those of Olivistiin. Hanrolite is shiefly admined for often afouring a cruis form appearance, footning like five crystals, four being united round a fifth. It appears however to be a requ. farity in the agregating of the sides, without a sufficiently to full up the lateral edges - see lower figure. They have been called twin crystals, as if two had paged acrofs each other. The whole appearance is somewhat. glashy, of a bhish pearly tristre, having a foliated frais Three on the broader faces. In other respects this somewhat conchoidal, and hard enough to scratch offals. Insible by the blowpipe into a grothy enamel. It does not form a felly when combined with wield. But if thrown on charcoal it emits a yellow thosphore light. On analysis by Xlaproth it was found to contain . Tela - - - 49 Baryt - - - 18 Argil - - - 16 Water - -- 15 Its from twe form is said to be in octactron, divisible in the documen of the Hagnot diagonals of the mutual base of the pyramids, so we to form 4 mingular tetraidowns, or separate 4 Solid ungles, leaving a Ehomboidal Socheraidron, which might forhaps with more propriety have her called

the primitive, to save confusion.



Staurslite or Groß Stone.

This is nearly the same as. Cala carbonata ferrifera, var. Lenticularies see p. 239. with very flat lenticular crystals standing edgeways, of a dull rusty appearance The matrix nearly of a similar substance, with Some listne. The whole shows the gradation of tints, and the fresh fractures are lightest, as is Common in these varieties. The left hand fig. has some signs of the trangular and other faces partly remaining; in the right hand figure They are entirely lost; The middle figure exhibits a transverse section, fresh broken, with signs of the confused whom -- boidal fractione.



Lenticular Crystallized Carbonate of Lime. Javistock.

Calse carbonata ferrifera, var l'enticularis. Spathose From Ore; Lenticular orystallized Carbonate of Lime.

Class 2. Earths. Order 1. Homogeneous.

Gen. 2. Line. Spec. 4. Carbonate of Line.

Syn. Calcureous or Sparry Iron Ore. Rivo. v. 2. 190.

Spathose Iron Ore. Bab. 201.

Shathigar eisenstein. Emmert. v. 2.329.

Chause carbonative ferrifice fenticulaire. Flainy, v. 2. 178.

Mine do foi spathique. De Liste, v. 2. 281.

This singular group of Spathose now ove; as it is often talled when gethered with the from over of Toomshire, may with as much propriety be called calcareous space. The engetallixation is found to be as it were intermedicate left hand figure shows the framitive Thomb some to hat flattened, formed by aggregations of the frimitive whombs of lateareous spar See Sab. 38.39. 61 The might hand apper figure defers only in having the space truncated, and the edges having rounded facts. The tower left hand figure shows the same with the rounded facts the lower left hand figure shows the same with the rounded facts the crystal It is altegether rather statter and rounder,

The lower figure on the right hand is still flatter and sounder, and approaches more to the hony appearance. The first is a heard show of the usual hight appearance The second more woloured with now, The near more to Still, and the last most of all. They may perhaps con Tain a little manganese. The authine shows the position of the primitive should in the replier figures. In the others it is situated as in the aquiace. Some Speumen came from Devonshire, Some from the Isle of Man They seem to indicate from in their neighbourhood, and may be useful in smelling it; but are themselves very deceitful, their appearance giving a strong. el inchication of from then belongs to them: which will in general be detected by breaking, as the fresh Ingment discovers them to be a mere line-stone with a Shight frearly tringe, which on being exposed to the common air and water will aprime The same deceitful tringe as the former exposed parts. These have generally been rechoned among the lintimlar over, and may have deceived many by their caternal appearance.



1-62

Combonate of Lime, variously abouted by Oscide of Iron.
approaching the Sintistitar. Crystallized with
various modifications. Tavistock.

Lincum sulphureum; Var. cubicum? Cubical Sulphuret of Line, or Blend.

Gen. 6. Zinc. Spec. 2. Susphunet of.
Div. 1. Crystallized.

The restangular or subical formation of these crystals of. Blend is, quite new to the Mineralogical World. Two speumenes have been sent from Cornwall, one marked from Timeroft, the other from Solgooth, and were firebabby from the stones of a miner who did not exactly know from what mine they were brought. The cubes of this specimen ownously show the chagonal strice, and modiate the accumulation of plates upon the Tehaidrons, or more common modification It may not be amif to remark that several other substances are Strated in the direction of their principal modification. as Theor, whose primitive is an octaedrow, but is generally Amated in the christian of a cube; Oxide of Tin, &c. This arrangement of thise is aft to mislead mereperieneled observers? See these more plainly marked on the

Upper right hand geometrical figure. The night hand figure shows these marks more faint by the the original with the marker of the fracture parallel to the edges - see the figure hereath, which if carried regularly on every edge, would produce the Thom bordal dodecardron, one of the char. actors of Blend. The gangue is mostly copper Syntes. Some figuring this specimen Sowerby has mit with a finer one from bornwall with smaller chistmet whie crystals, or rather separate ones, much resembling Pyritas: The chagonal Strice however help to detect it they are nearly gold-coloured, and indescent externally, but dark like Blend within











Cubical Bland. Comwall.

Ferrum oxygenizatum. Soliated Oxide of Iron.

Glass 3. Metals. Ord. 1. Homogeneous. Gen. 7. Iron. Spec. 3. Oxide of Iron.

Syn. Plumbaginous or Micacous From One. Tinw. v. 2. 184.

Eisen-Glimmer. Emmerl. v. 2. 306. Fier oligiste 'écailleux'. Haiy v. 4. 45.

This avrious variety of bron one is found in Wales, Slot. Land, Comwall &c. It has the appearance of From with somewhat of the gloss and the blackwish grey trub of black lead, occasionally with the blue, prosple and some-times the other indescent colows. It is more or less flat, viregular or undulating, in very thin broad farmina, one over another. They have two sots of parall. el lines cropsing each other obliquely, and forming the plain of a thomboidal. It is found in rocks of quark, and the Upper figure has some yellowish mice about it. The right and less hand middle figures show the parallel lines cropsing some fragments,

and the undulating structure. It is not attracted by the magnet. It is very brittle, and easily breaks into Small veregular fragments. The sparkling middle fig. is known by the common name of glimmer, or scaly from ore; and often accompanies the above, as well as the Mach and ned hamatites. It is blackish or red occasionally The little bright faces of the scales reflect the light with great brilliancy, harticularly by candle light. The ingraving I copied this from the very substance was used to refresent the The tiggest figure is among broken quark or rock, covering the surface or felling tittle holes in a Statured manner. The lower figures are aggregated bundles, which are often found much farger: they have Sometimes a tendency to orgotallike in small showly but Soworly never sow any distinct enough to be measu. -ned. The angles appear to be the same as in the Totated fash above to which the lower evidently belong, It is found in Devonshire. The same from Stotland The Topper one was received from Waler.



Specular or Miaceous Soon Ore. North Wales and Devonshire, &c. Siles analcimus primitious.

Class 2. Earths. Order 1. Homogeneous. Gen. 4. Siles. Spec. Analcime. Div. 1. Crystallized.

Atthough the whi Analine of Hairy, or what is still by some salled lubic Trolite, is not rare in some parts of Ireland, especially among basattic rocks, yet we have had very the amount of it. The present operemen same from lane Still near Belfast. Haing dis. Tinguisher this fafil as having fractures on the six Jaces Those of the cube }, or in three christians only; but these specimens are not always easily procured. It is however sufficiently distinct from Theor by its Caperior hardrup; easy fusion wito a transparent white glass without ebullition, and want of phosphorescene; having ended all the thuracters of tab. except as to form. Sowerly has met with supression of this with

Ireland before.

other analisme, as well as small crystals imbedded in The radiated Analume, or what is by some called rachated Leotite, in the holes of basathie Trap, if it may be so talled, for it certainly is not Lava, with which this Sort of Trap has been confounded. Sowerly hopes Toon to be able to explain the difference. as to the matune of Basalt & Volcanic Trap which has consed to much argument. The Wher speimen shows an almost undefundent largish crystal. The lower specimen is a tonsiderable growp of small crystals, with sometimes surved or concare faces marked with diagonal strice; See the fateral magnified figure. This substance in these shapes owners in many parts abroad, as well as in Scottand; but downly does not think it has ever been mentioned as found in







Cubical Anatime.

This is the Same substance as Lincom Sulphurahino see 1ab. 196. The erystallication is a very curious one. The edges being municated adding 6 faces which, with the truncations and the solid angles spoken of in tab.

make 14 faces. The fatter faces may be mangular, fine the three bottom ones, or hexangular like that at the top.

These are on a ganque of somewhat dirty green chlorite and quark with Printes. The nature of where the primitive form is figured.

The well known semimetal Zinc, is often used as a firmital agent in galvanism, for making of braf, &c. is extracted from this ore?



1-75

Tetracidnal Blend or Sulphuret of Line, Truncated.

Jab. 168.

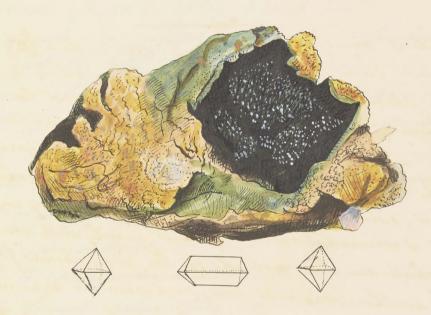
Euprum arseniatum.

Asseniate of Copper.

Class 3. Metals. Ord. 1. Homogeneous. Gen. 10. Copper. . Spec. 8. Ameniate of. Dio. 1. Crystallized.

Syn. Arseniate of Copper. Bown. Phil. Trans. 1801.

This is the 3 variety of Arsoniate of Copper, which the Count de Bournon calls the acute oclaedron, in which the more inclined planes much at an angle of 84°, and the others at an angle of 68. The front variety or obtuse octaedron is fig. in tab. 97. and go and the second variety in hexactral plates tob. 66. The fruitish is mostly of a darker cofour than The other, commonly a bottle green. Like many crystattica Thous it is somewhat rounding but mostly with concave Jours, which are here noticed in the geometrial figure as well as the straighter one, and also the manner of The elongation of the octaidron towards forming a frising which it aften afournes by being placed on one end; Thus at first sight giving a new idea, and forming a 4- Sided friem with a dicidral summit. By the analysis of M. Chenevia, this species to found to contain Oxide of Copper ... 60 Arsenic Daid ... 39.7



Asseniate of Copper.

The rarity of this substance in determined erystals, esfecially in Great Britain, is a sufficient excuse for fig guring a specimen of the present appearance; which has no frutenhour at first sight to value.

Experience, however has shown no that in some thing, that rarely crystallise a characteristic Specimen is a tolerable price. The present has some mallbut determined crystals when examined carefully with a lens, and the bittle middle figure is a dingular for. : mation of herangular plates, which living deposited at the lower part regularly in equal-sixed plater, John an heacithal whemm. Those mimediately above The cohumn, diminishing by degrees, from part of a pyramid; and a few plates of a tittle Turger dimentions, hanging slightly over at the afea, Seem to explain by this small irregularity, that the Whater formed before they were deposited. The Tow. : Er middle outhine explains the fromthe nectanger. - far figure, and the auumulation on the sides, forming the hescidral plates. The right hand geometrial Jigure shows the restangular frimition or cubic form within the column, which by as Little thought may by a tyro be comprehended as

The primitive form that arcumulates to that of the left hand figure. The hexangular colourns. has 4 angles of 121° and 2 of 118°. The ganque is composed of Phlorite, Inwith, Oxide of In, and Arsenial Iron, or Misperhel. The Theimen comes from Comwall. Tungstate of Joon has not that Sowerby knows of hein found otherwise than crystallised, although the crystales are almost always interrup ted. I may be known from most other Intestances by its pential fraction, which in The tabular crystals is perpendicular to their larger facis. It may be scraped by a Knife giving a chowtate brown powder.



Scheelate of Iron, or Wolfram.

26%

Bungles carbonata.

Class 2. Earths. Order 1. Homogeneous. Gen. 6. Barytes. Spec. 1. Carbonate of Barytes. Oio. 1. Constatlized.

Gen. Char. Pulverulent, white somewhat pungent. Grav. 400. Soluble in most of the
acids, I in goo times its weight of water. Its
mitrate does not tinge flame red. Its sulphate is nearly soluble. It forms a hefar with sulphur, which is poisonous.

Bab.

Spec. Char. Combined with carbonic acid.

Syn. Barolite or airuted baryles. Kir. v. 1.134.

Witherite. Syst. Min. Jameson, p. 578.

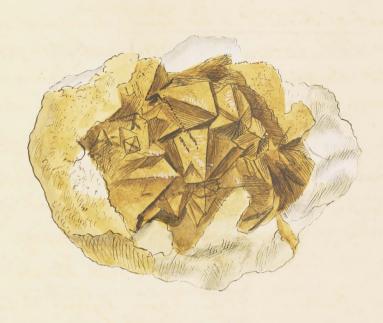
Withcritt. Emmerl. v. 1. 546. Wiener.

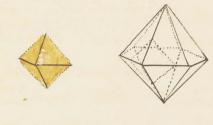
Baryle carbonatee. Huiry, v. 2. 308.

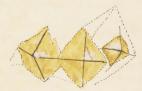
This fine specimen same from F. Hall's, Esq! Lead mine, in Arkindale, mar Arihmond, York's

It was first found at Inglesouth in Lancashere, but since in other places.

Carbonate of baryter was first discovered by De Withing (See Shil. Trans. 1784, 901.), when it was called acrated bargter; but M! Worner withing to honor Do Withering named it Witherite. It has since very property been called Carbonate of Barytes. Radiating carbonate of bangtes in its weight and appearance very much resembles sarbonate of thon. tia: however it cliffen from it never being of a greenwish colour, and in having its rache harger, more compact and Statter. The reper figure refredents sarbonate of bangles in dodernedral crystats, formed of Two higaidral pyramide joined buse to base, time quart. There are the Largest Sowerby ever saw and are rare at present. They are covered with a fight ochracions substance, perhaps calamine. The Matrix is Carbonate of Baryles, in hart decomposed and of a chally appearance, The figures below Show the geometrical plan, and in what manner one of the tolid angles of the base has been motation for hart of an octaedron, or has given the idea of two 4- sided fryramids poinced base to base which may hove des-- wiled as one of its forms of crystallexation.







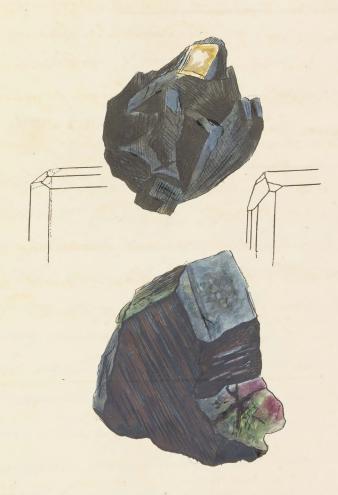
Carbonate of Barytes in Quartziform or Dodecaedral
Crystals. Yorkshire?

Fortum Scheelaturn! Schelate of Fron, or Wolfram.

Syn. Wolfram. De Liste, t.ii.311. and iii. 262.

Thus substance had long retained the German name of Wolfram, although mineralogists were much divided about what class to refer it to, until Scheele had discoursed Tungsten. It is found in tolerable quantity in Cornwall, Lother Jan - Countries . from the The of Man - which formerly produced Time. Much Shathove From One has been found there, very much of the same nature and hind as that figured in tab. 68. The present specimen on amount of the orystallised parts is carious, the crystals being clear enough to abow them to be described, which is vare. The primitive crystal is a cube which may be fractured parallel to one of its faces, com. : monly with quan case, & parallel to another with Some difficulty; but in the obnection of a third with much trangularity. The crystats on the When sperimen cannot be deen without a lens.

It is accordingly refracented by an outline on the left hand of the plate to show its modification, and another more complicated on the right. By ea - aming These the will be found that they modify principally on one side of the orgotal, leaving the other Sometimes unchanged. The night hand one is compound than any of Hairy's crystats. The lower specimen has frash of a pyramidal face exposed, and the plated fractione is very district as well as the Thining fuste of the surface: This somewhat usembles the Shewmen from the Sole of Man, and is the moch usual form of farge ones.



Scheelate of From, or Wolfram!

Stannum orygenizatum.

Oxygenized Tin.

Chafe 3. Metals. Ond. 1. Homogenicus. Gan. 6. Tin. Spec. 2. Oxygenized Tin.

Dio. 1 . Crystallised .

SPEC. CHAR. Combined with oxygen.

Polacidual ergetals of oxygenized tin, destitute of any truncations, bevellings, or other modifications, have represented are man never got been found; these represented are man with that simple figures. This came from bornwall: They are very black with much lustre, bying in every direction; some are anacled or transposed with various thuncations, bevellings &c. The middle fegure shows the most perfect ortains ichon Sowerby has seen. The edges of the prism is perhaps shorter than here represented. The folly chard outline shows what it should be as a perfect outsidown. The angles of the base of the two payramids are go.

Those of the face at the dummit are '70 31' 44", and at the base 34° 44' 8". There have been Two opinions concerning the fromthis form of oxide of time: The one that it is an ortaidron; and the other that it is a lube. We have obtained very near fractiones of parallel to four faces of the latter, and signs of faces michined whom them, do as to form a Thombordal dodecaedron.



Oxygenized Tin, with Modifications of the Octavidron.

The other specimen see tab. is externally very much allied to a sandstone, although Somewhat more condensed in the middle or centre; which often happens. The whole of evenine is part of a price found in Hech Sheet in repairing The Sewer There. I was very food in the outward Teature, and is quite Solid within, foring the appearance of wood, having The hardness and fractione of whit, with a colour the that of Wood. It is stained black in some places, appearing tohe burnt wood. In this Specimen it can be hably seen whether to hadbeen Storehed or blackened by artificial fine, as is Some himy done to give it durability,) or by a natural process, more gentle. The piece figured below came from Derbyshire, it is nearly black all over excepting the outside, where it seems the bark may have coured it. This blackness give it the appearance of howing been charred by fire; but fire in the word way must have affected The outside by stains or smoke &c .: This therefore Is an extraordinary appearance, and difficult to be accounted for with certainty.

Bothimen often paper into bal, or new com-

- benations under the influence of their par-

Thinlar situations.



Wood-like Quantz, or Petrified Wood.

Siles Analcimus, var, compactus.

Class 2. Earths. Crd.1. Homogeneous. Gen. 4. Silva. Spec. 8. Analisme.

Div. 3. Amorphous.

Syn. Analime. Hany, v. 3. 180.

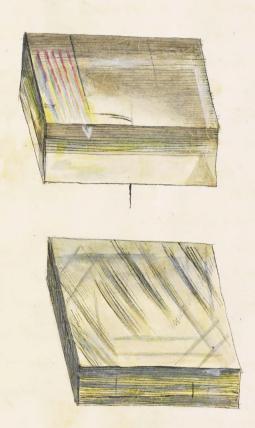
This curious substance is not uncommon in Great Britain, wherever broalt, and trap are found. We have Tome Specimens from different parts of Scotland, which toutain it in modules, This specimen came from the Isle of Isla. and is somewhat Statutitial, and extremely Janous in the shapes, sometimes forming roundish drops from the die of a firm head to that of a large pea, and often of a hmothy elongated prime when a Potatoe. I seems to be a transition from quarte, and decomposes into filamento forming Zeolite. This operemen cahibits it beginning to form plaments. The bottom of the Targer maps, which somewhat resembles the humans, or thigh bone of an animal, appears once to have been in a thick fluid state, and might have

quie some idea of the forming of the flints in challing rocks (see page 234) More of this is mentioned in another Mace. They may be found somewhat various in their tolours. The most rommon are mearly as here represented; transparent white or glassy, and after hearly or greyish within; the outside heing coaled with a high! brown crust often nearly opaque, which gives an idea of presh cash wave. The frathere is is -- Eigular, glassy or flinty. Analume may be found in most of these appearances so hard as to resist a howife, hhe quarte; but in the State of compact Leolite or habing with fibrus, it may be derathed with a hinsfe or any steel instrument, though it resists From or brap. We are not sure that this is the time hyalite of Arrwan; who says it does not five per de at 150°. Ours poses for se at the heat which turns Carnehan white, which Arra. observes was 160.



Hyalik in Trup, Scotland.

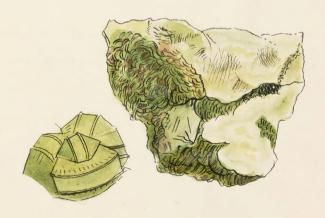
The upper fragment is in the form of the muleus, or an upright parallelopiped; and as the Jaces are the same with the primitive, it is placed with the upright faces on a line, to show the repairtion is not double in that Ancetron: & h is to be observed that the requires a large depth of crystal to see the repartion Though The other faces without the aprotance of a tens. The planes show the prismatio tints, who other farmated orgotals; This shows the depth of the flaw, and it is so sufficiently elastic that we can, by prefune, delate the ponomatic trues, so that 1012 dets may take place of the 5 sets represented. This same from Surham - but did not know of the value Till lattly - having descoursed that it contains many small chops of Water, or other havid in little hollows, which as far as me honow have never been discovered in any other substance eacept quarte, or rock crystal. The lower one is another fragment with a curious pearly appearance, and has comewhat the appearance of sulphate of time or gyps, but may be readily dis. Tovered by The weight.



Fragments of Sulphote of Barytes.

These fleximens we from Salisbury Grangs, Edinburgh, and show the comial wheel - like formation nearly in perfection, but very small. Sowerly has greatly magnified The right-hand outline, which shows anarrow primitive edge, bounded by two lines. A Timlar crystallication is found at Arings frash Idin! The lower doch came from Frishy Hall near the banks of the lyde, about three mikes from Glasgow; and also from Nother's seat Idin! It shows a broad primitive face on the edge of the ergotals, bounded by two auto Tidges, which are blaced very confusedly on the ope-: cimens. The M. Hon ble C. Gneville has in his collection a specimen from Dauphine with impotate, not much unlike the magnified left-hand bottom figure, m sure & colour.





Crystallized Prehnite a variety.

Burytes sulphata, van. primitiva. Sulpate of Barytes.

Gen. 6. Burghes. Shee 2. Sulphate.

SPEC. GHAR. Combined with sulphum and.

SYN. Boroselemite. Rino. v.1. 136.

Schwer-Spath. Emmerl. v.1.550.

Baryte Suffhatie. Hairy, v. 2.295.

Natrum cristatum. Linn. Syst. Nat. v. 3.90.

Ponderous Spar, as this was commonly called in Ingland, agnees with the Greek term Baporys, heavy. The uncommon weight of this substance in companion to that of other stones gives it that name. Inequent in or near lead mines in Derbyshore, tumberland, &c. - When transparent, it is generally engotallised and saparable into lamina, much resembling carbonate of time, and gives a double refraction through the rectangular faces only, but somewhat weaker than that of carbonate of time. This is a curious in cumstance, I perhaps has not get been noticed. It may lead to the time nature of double repartion. Hairy had recourse to the engenious method of forming withfield faces to desioner this property. This specimen is an are from Lancachire, and is as near the primitive as is generally seen in Great Britain.



1-70

Primitive Grystallized Sulphate of Barytes, &c., formed on a variety of Shomestite Iron from Lancashire.

Argilla durifsima. Scotch Coundum.

Gen. 2. Eurths. Onder s. Homogeneous. Gen. 2. Augil. Spic. 8. Commidsum.

Gen Cherr. Unctuous to the louch. Easily diffusible in Water. Adheres to the longue. Spec Grav. 2. Kins. combines - difficultly with wide, forming with most of them delignescent salts, soluble in borac: 18ab.

Spec. Char. Nearly fure argil, hardest of all minerals eacept the Dramond. Divisible parallel to a thomb, The ungles of which are 86° 26'. 93° 34'.

This curious substance, came from Achen door Southy a clearer at Aberdeen under the name of hed School. It appears to be new to British writers. Sowerby says it is not to be found in any mineralogical collection in Lordon. It occurs in Long solvennes or bars from an eighth of an inch to 34 Thick, mostly confused, often diverging Le with transverse flows, having the matrix intervening abruptly. Its fractures are Songitudinal and Ablinting of soften soften angles: on one two or more stills in the centre of the angles: on one two or more stills the ends approach towards a pyramid with 4 Thombis. It ends approach towards a pyramid with 4 Thombis. It could face I thought found the faces how.

AND THE SHARE THE STATE OF THE

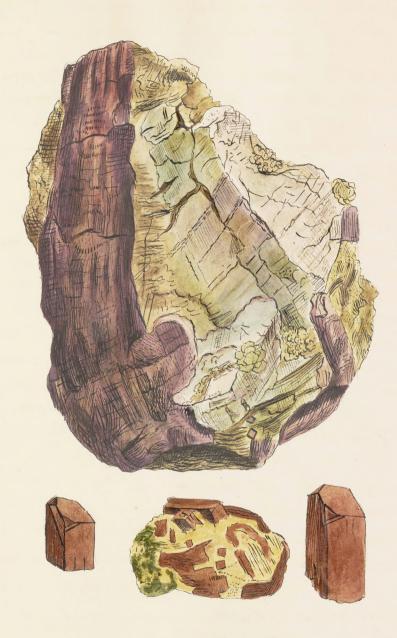
Me find this fafail had been taken for a tubilite, and theriving the south that ithe with the that ithe of Kind. N.1. 288. Sometimes confounded with the telanite of Kind. They the radiating variety be the substance of which Maignant says the gamet were formed? He describes it as worsting of strongth fibres deverging from a common con tonsenting of strongth fibres deverging from a common con ton the see Kind. V.1. 261. Its common appearance resembles for see Kind. V.1. 261. Its common appearance resembles gamet much, but it is not fasible by the blow fife, whereas gamet is fusible with a black enamel.

The so called another Mostame Essembling this, according to the Short description of fine was found by Morveau in Poiton, c. 1336, which he presumed to be adamantine spar Again as Staing obscreves, another mentioned by Morveau, found in Le Tores, we wonther it queatly; and very hard third in Le Tores, we wonther it queatly;

Hardrep of owns nearly the same as that of spinelle. Town the soft to south the harder spinelles would scratch it; but the soft or scratched by it. This seems undoubtetly the "hath adamantin d'un rouge nocht" of Bournon he dwinds in the year 1989 from specimens found in Le Stores. (Journal de Physique 453.) and now considers as a variety of coundain. Ofter authors have had a similar idea. We here subjoin a part of his closish. I similar idea. We here subjoin a part of his closish. I tion: see Phil. Trans. for 1802, 323. where quoting staing, w. 4. 562. who observes "that it scratches quarte; that it specific gravity is 3. 165, and that it is inpusible

by means of the blow hipe;" Bourram observes, " that it is Ted with a prophlish linge & Some of our also are of a greenith tringe especially when between the eye and light that the appearance of the substance was entirely different from That of felspar; and that where it came in contact with The fels par it seemed to min strelf with it in such an meensible manner, That after having saved and polith a fruit of composed partly of felspar & portly of this substance, it could not be seen where one began or the other ended. Can is readily chotriguished from felspar, which it moists occasionally so that it is formed round it him a trube, de the middle figure at the bottom: It is also often running among it in the directions of the fragments, after hafsing abruptly acrossit. The nearest approach to mining insinsibly is by fibres, which in ours are however sufficiently district. The lourch continues to observe " That the queies he had collected varied considerably in their degree of hardness, although all of them were harder than felspar nonally is, for many of these prices would scanely derath felspar; whereas others would scarrely be Inatched by the greatest number of gems, or finerion, Stones. The characters of the task mentioned or hardest preies appeared to be very similar to Those of the Imperfect woundern from China, a crystal of which Shome de Lish had sent him a shot thine before. The above observations, joined to the remarkable

nammer in which this substance was mixed with the felipar made him adopt the orroneous opinion mentioned by the able Hairy in his observations refron borundum; namely, that this substance might be nothing more than a deside variety of felis than. He soon quite gave up the idea, when he examined the Commann" Upon compasing the mechanical divisions of the course Sum of aylon with the Scotch one we find that it is not only parallel to the 6 new of the shoul, as described both by Bourson & Huing, but also parallel to 8 other faces all mentioned in Slavy's description of his felspath appre, 2 are mentioned by him in his Schoole, & other 6 not mentioned any where as Earsting in the corundism of leylon, but wh we find in some of our efecimens. These faces are not so meat, or so easile obtained as those harallel to the Thomb. The gangue is chiefly compand of a course granite intermined with indusated ashestor. M. Jameson mentions the Corundom of Tine; which differs from this the quotes M. Greville's memoirs in Frans of Brogal South for 1798; 40, who observes that it scratches glass seadily but not rock by that fainton says " Thelicine there are specing, of this committeen in the museum of the Univertity, and of then Shall probably communicate an account in the close of this volume " hut as he says no more about her hope it will be solled in his new work. We prosume This is no more Thought of as a corundum, as C. Bour - Non in Shil. Frans. 1802 makes no mention ofit as Such: Therefore ours is the only Thing known at Museul as a commentum from Scotland.



1-69

Ked Schoole . Scotland .

Jab. 178.

This same from Harffield mear Paidey. a fine spetimin showing the green side of the Fadii, and the
orgstals in nearly regular 4-sided solumns, with 2
opposite miniation at the aprice; these thinsahous, or
serondary faces, are the same as those in another
description, tab 153 on the repper edges, and ought
to be particularly remembered, as they afsist in
forming a very singular modification, which is
shown in tab. 158.





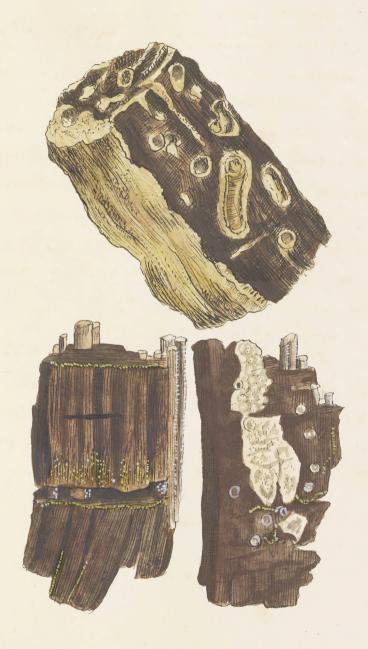


Crystallized Frenite a variety.

Ferrum sulphurium?. Iron Pyriks in petrified Wood.

The upper Securen seems to have been part of a cylin drical frew of wood, and was found 260 feet below the surface of the earth in degging a well in Reihmond Park in 1804. In appears to have had worm-holes of holes of Toubella perforating it in various directions, which may be presumed to have happened before the proup of he = Infaction had taken place. This may more properly be called Pyritaicous Wood, as the Syster or Sulphunt of From how filled the fones of the Wood so perfectly, that the shape I domewhat of the hature of wood was seen, but as if Jonned of pyrites. The worm holes some fined with papites and others doubly dined. One vide being nearly lovered with Synter mather it a beautiful specimen, as well as an instructive one. The lower piece was furhaps of different Word, appearing the part of a plant. This was found 100 feet deep in digging a well for M. Imman's browhouse, Spital-fields London. The worm holes are fined the the other, but they Seem to have been a particular species which

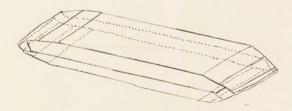
prefer a straight direction, croping the fibres of the wood. It is somewhat remarkable that the woody nature remains, and being found damp and fully saturated with the printes, it washed and contracted from it, and is held together in some parts as if withfinally done with wires, and is in some facts curved and warped. Thus although these pieus of wood seem to have been many years under this procep, they are not much changed, but rather fore. sowed, as, now it is exposed to the common air, These changes which show its nature become evident It will soon fall to decay, in the same manner as some part has already done. The Iron and Supplier decomposing the water of the atmosphere, The sulphur heroming ardified dipoloes the Iron, forming green outrid or Sulphate of From which Is very deliquescent.



Pycitaceons Wood.

Tabular sulphate of bangles is the most common variety. The finesh specimens generally come from Cumberland. The Tabular crystals are sometimes hand -- parent, & often more or les stained with othere, They mostly Stand whom their edges often very distinct I in every direction. It may be observed that their edges are parallel to the diagonal of the nucleus, therefore it becomes rectangular. The present Specimen has small corner facets, parallel to the faces of the primitive or mucleus. One end has bevelled Jaces on either side, the angles measuring about 128, which are parallel to the small mangular facts on The lower figure of Jab. 176. The other has three bevillings. See the geometrical figure.





Tabular Crystallized Sulphate of Baryles with 22 Jaces.

Ferrum sulphureum.

Supplient of Iron; Iron Syrites

Class 3. Metals. Ord. 1. Homogeneous. Gen. 6. Iron. Spec. 6. Sulphweet.

Div. 1. Crystallized. Var. Octaedral, &c.

Syn. Fersussivé octaëdre. Hairy, v. 4.69.

Octacional pyrites is not so common as cubical pyrites; we have it however along with various substances, as Enlancous spar, himestone, coal, &c. The mesent figures are disigned to show his modification from the cube haping wito what Hairy calls auto-octaide, thence with the perfect attaidron. It the commencement of this change the corners of this cube are replaced by hi--angular faces - dee the left hand figure - which as the modification goes on becomes planes of six rides each - see the middle figure - and at last the Ammition faces are lost. These six-rided planes are Educed again to triangular ones, forming the octaedron. The upper & night hand specimens came from Bath. The first is the each of a shell of the Trochus genus; and it should seem that the crystals are on the east

THE RESERVE THE PROPERTY OF TH

in place of a Shill, as the rock is about the thickness of the Shell from the east, and is a mould of the outside of the shell. On the lift hand side remains a bit of the rock, and on the Tight hand are exhibited the thickness and calcareous is mains of the shells, sufficient to indicate the species to a sorieng conchologist, which appears to be deferent from any shall of the mount age. This came from Bath. The Typites on This are orlaidrons, some of the Solid angles shightly Francated . I nearth resembles Trocher nilotitus, Linn, but we do not think it is of that species. The each of the shell on. the right hand, of a golden here covered with pyritis, gener. -ally deeply truncated seems a fuires of the Mytilus ent off in the manner of Donax denticutate Line. The shell on The lift hand sums to be a Tellina, includes pyrites, chiefly sealed in, I not found till the shell was broken. This shell resembles Listen Sellina tata Engova, tab. 890. J. 229. These opils are found in quantities at Woohvich & Carthon, 9 feet from The surface of the full, in a loose marly stratum from 1 to 6 feet thick. Soon delay when exposed to the air. The other Sort of shells are two species of Turbo. Of Oyster shells there is great plenty, These do not decay so soon as the others. There we other shells in this envious place.









Supplimet of Iron, orgatallized in Cubico-octaedrons.
Bath, &c.

Burytes curbonata. Crystallized Curbonate of Bartes. Order 1. Homogeneous. Class 2. Earths. Spec. 2. Carbonala. Gen. 6. Barytes. This speumen came from M. Halls anine in Ahen. - dale; and as it is the first time that it has been no = tried with clongated sprinte so districtly seen in hea. aidral pyramids, Jam pleased at the opportunity of eachi - biting a figure of them. They are on a gangue Galana.
of Sulphunt of Lead, brining an overgular sphere;
echinated as it were with spriate see the upper fig-- we. The lower figure on the right hand is a group of the spricetated crystate on the left hand is a geometrical outline distinguishing the faceto, three of which are continued to the apea, atternating there fast are scarcely to be dun, and the sprinter sum

to have only Three dills.

Jab. 182.





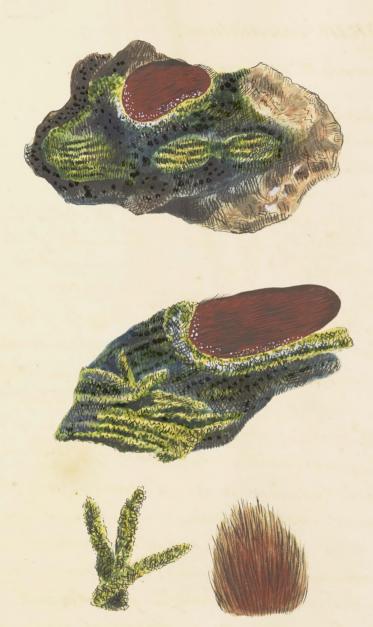
Carbonate of Barytes vrystallized in determinate hexaedral Spiculae.

Tab. 183.

Arseniate of Iron.

Class 3. Metals. Order 1. Flomogeneous. Gen. 6. Iron. Spec. 8. Arseniate. Div. 1. Crystallized: Var. y. Primitive.

This arseniate of Iron is one of the richest that has beenseen hitherto; and what adds most to the beauty of the Specimen is, that the lighter green cubes are amountaled in groupes, forming threads, tying on darher ones, all of which are very publicid. To add to the rarely of this Specimen we find outremely fine fibres of an oxide of how? partly encircled by a band as it were of the arremate, which relieves the reddish brown dusty appearance of the oxide; and this fast, in return, reheres the glotting arounder. The fibres of the oxide are so fine that it requires a high magnifier to See them; we could not discover any other than Snirple fibres. The top prince is of the natural sine; The middle one, Somewhat magnified; The Tower are more magnified. The gangere is chiefly quark, with various coloured ochres and some awenical tron, of what has been called mispichel: see the metallice parts hi the apper figure. This is in M. hashleigh's collection.



Ameniate of From Cornwall.

Cuprum oxygenizatum; var! Enbicum.
Cubical Red Vocide of Copper!

Syn. Cuivre ovydé rouge catique. Hairy, v. 3.55%.

Good embrical crystallisations of hed oxide of Copper are much Tarer thon octaedrons: see tab. 68. This specimen came from hadrath in Cornwall. It is crystallized in distinct cubes some. - times, but offener in rather viregular groups, yet with their edges and planas parallel to each other, dellow tihe fluor, . tab. . or Galana tab. . &c. which we generally more confu-Ald. Il rarely forms large cubes, although I understand that Some have been found it with in dramater. They are often truncated at their Solid angles, forming the inboothie · due of Hairy, tab. 68 : and 71. The magnified figure refine South a group somewhat like one one the specimen, which pas a large onto-octaile at the left hand corner, and the nest consider of various siled cubes, and one or two of another group, showing that the different groups may stand in different doutions. These are more generally of a more beautiful Bohemian or Scotch garnet Now called Prope differing from the com. - mon gamet in colour transparency, and in never being crystall-- Red . It should seem also that they may be still further sub-· divided of colour than the ortaldrons. We know of no difference in their substances.





Ruby Copper in Cubical Crystals. Comwall.

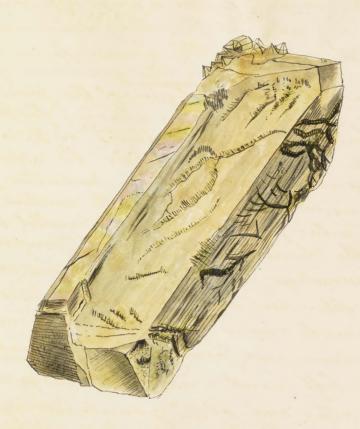
Burytes sulphata. Sulphate of Barytes.

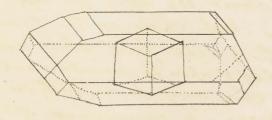
Caps 2. Earths. Order 1. Romogeneous. Gen. 6: Burytes. Spec Sulphate. Dio. 1. Crystallized.

The specimen from which this figure was taken in the collection of M' Professor Hailstone at Lambridge to whom the was finesented by John Brobart isg of Copthorne near Threwsbury, in whose interesting museum the professor Saw several other crystats of the same hind, but of Larger dimentions, and understood that they were found in same part of thropostire; but he had no opportunity of ascertaining, any porther particulars zespecting their native beds, and situation inthe earth. It is a valuable specimen, to show The nature of a crystal terminated on all sides, This is not common to sulphate of bargles. It has any a few quark crystale at the when corner, as expressed in the figure. The modification is alto-- gether singular, and is a variety not figured. we find the has 23 faces, some stariety distinct. The crystal is lengthened parallel to the obline angles of the thomb, and the upper from the face, which shows the fire matic home somewhat helow the sorface. It has little hollows as it were unsupplied by molecules; this his the case also

A THE THE PARTY WAS A PROPERTY OF THE PARTY OF THE PARTY

In other parts. giving the crystal a rough appearance. These pollows agree very well, when narrowly examined, with the shape of the nucleus. The general form will be better understood by examing the geometrial fegione at the bottom containing a figure of the primitive or Thomboidal priom See tab.; allowing for the perspection, and concerning the sharp angles as the obtuse ones. vis. The right and lift hand angles; the repper and lower faces and the 4 corners are primitive faces, cornexponding with the 6 faces of the muleus. The four farger octangular faces are widently parallel to the achte corners of the Thomb (allowing for the perspective). In their formation, the farming are as the were arranged on the wholer and under primitive faces, decreasing from the 4 acute angles of the muleur from 4 oblishes angles; the same also forming I long quadrangular. faces at the left hand end, and I large hexangular ones at the other end of the geometrial figure toming in contact with the frimitive faces at the corners at an angle of about 123° with the upper or under Amintino faces. Nest to these on the same angle of the moleus, are 2 other 4- sided faces above & below, the larger at an angle of 140° 59' 2" afron the primitive, and the smaller at one of 162°2' 44". These may be distinctly seen on the top of the upper figure. The lumberland specimens seem to have the face of 123°, Which appears not to have been den by Harry. M. Hartstone's Sperimen has two Small faces marked by dotted hines on the night hand from. worms, and one on the right hand corner at the back. which agree with the faces of Hairy. This Sow! has not Jeen in any other english feirmen.





Crystallized Sulphate of Barrytes. Shropshire.

1-98

116.186. 341



Hair-like Pyritis, or Supplied of Fron.



Oxide of Manganese.

Siles Quartsum; Var epalinum. Opal.

Gen. 4. Silex. Ord. 1. Homogeneous.

Div. 3. Amorphous.

Syn. Quartz resinite opalin. Hairy, 2.434.

Opale. De Liste, 2.145. De Born, 1.81.

Edler Opal. Emmert. 1. 277.

Calcedoine vrisce, Opale. Danb. 3.

Hall-opal. Werner.

The restly of their gene make it worthy of notice, and the reach species shows it paping from Chaledony to carefully and from theme to thy drop ha nows Opal, or what has seen salled Called munde. Lastly the forms the semi- opal or tommon Opal. The that calcedony to hardly to be destinguished in a drawing, it is the darcher hard mixed with copper furities in the figure. The name Cachestony upplies to the opaque while and off or part, which may be samped with the friger mail, and will like all agates and labedony, be some more transparent in water. Hydrophanous Opal is the life opaque part of a greenish hue, and in water decomes like the spal or blueish prempart. In this state it results the spal or blueish prempart.

in Water is not to be drokinguished from the Opal, but becomes spague again when dry . Common Opal is nearly the Same in appearance; other wet or dry, and comprises the gray-- Wh, plucish, greenish, and yellowish parts with a milhy or waxy lustre, (time the Semi-or Halb-Opal of Wiener,) with a vitescent effetgence or yellowish fiery glave, in Some fight, especially in the flaws. Fracture glapy. Hardneh sufficient to out grafs. The most heautiful Specimen ever horovered of this substance is in the passession of J. M. Cripps, Eng " of Lewes, in Sussea : Th same from Constantinople. level was found at But-- paid. Inlike the common specimens, in which Opa-Time bood appears in small vieins nothersecting the som-- mon Wobil Wood, or in a fragile state him pitch stone It has throughout the whitenep of lacholong & in some parts the lastre and colour of the genuine shal . It is. Jarger Than a Mans body & weight 148th. 93 ox. avoirdupsis. If presents half the hunt of a large hee, with the node of one of the principal oranches. The timber the bark, & lovery part of the mass is perfectly opaline. The B. Honde Sir J. Banks had a Mammoth's quinder, lately found on our coast, opalised. Sowerby Saw a Mammoth's tooth from America somewhat opalized in the late M. John Aunter museum. There we dome also in the British Museum. Sir Hans Stoane gave 200, for an Oculus mundi now in the British Museum.



Opatine Calcedony. Cornwall.

Cuphunet of Copper

Glass 3. Metals. Order 1. Stomogeneous.
Gen. 10. Popper. Spec. 4. Sulphuret of Copper.

Dio. 1. Crystallized.

Syn. Yellow Copper Ore. Ring. 0. 2. 140.

Syn. Gellow Copper Ore. Ring. V. 2. 140.
Copper fightes. Syst. Min. fameson.
Ruffer-kins. Emmerl. D. 2. 232. Minner.
Cuivre fryitews. Hair, v. 3. 520.

This copper on is not uncommon but this form has not been Spoken of by any mineralogical writer. Totalidrons have been mentroud, but not with fintinesar convex faces, which seems a character of this one when crustallised in thraidrons; most British spe. - comins unline to converty. These will turnish, often assuming a coat, either time she steel, or blueish black, and it often has the green platina, or vaide of copper, on the sweface, mentioned by lount Bournon in his deseption of gellow copper; Phil Trans. for 1801. When fresh broken in is of a bright greenish gel. Low wolour with a metallie limber, and the flaws tomish to The various colower of what is commonly called Peacoch Ore. The fracture is smoothish, having more or lep of a fine -Grained surface, sometimes who the friest sand. The anystals are brittle. Is, tender to Make fire with tell The lift hund diles of the two figures show the milination to form three traperoidal faces on the Trangular ones;

A STATE OF THE PARTY OF THE PAR

and the Jegure between two columns of quorte shows them more plainly, as it down also the signs of the triangular ta mina of Superposition. This is taken from another Tomish specimen. The geometrial figure shows the domewhat oblive totaldron; each face of which is it -Metaced by three hape wordal ones making a doderacidor. The march modification of this hind is in home de l'Isle, tab. 1. fig. 28. but this has 12 additional isosceles Triangular faces. Stairy has a crystal something time This in Inthunet of Zine, which he derives from the Thombordal dodecaedron. See his fig. 197. The rounded Takaidal crystals are therefore paying to the dodecaidron, in an almost unfurcipable manner, as the three figures on the 2 time Thow . This specimen has some more perfectly marked, and some huncated like the two left-hand figura.









Sulphures of Copper, with the Trapezoidal Dodecaëdron and other Modifications.

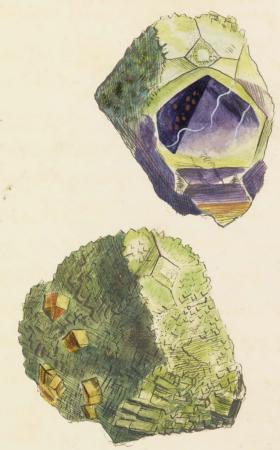
Calx Fluor, van. Fluate of Lime, or Fluor.

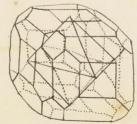
Gafs 2. Earths. Order 1. Homogeneous. Gen. 3. Lime. Spec. 3. Fluate.

These specimens are among the rarest of the fluors known in Great Britain. It is an instruction Theimen, having the form of a prople octaedrale mucleus within side, and the green modification in order about it, which adds to the hearty as well as suridity. One side of this octaedron has many I mall but perfect outice - octavitrous (or cubes with The corner minealed) of printer. Sowerby has a Specimen. It is somewhat rougher and rather Sheller, standing on a confused or taidron, the Corners of which are rather prominent, forming, as in were, veregular steps; It concludes a small actachrow meener than the rest, but rather ob-- save, within which is a smaller purple one but which is not to be seen without hirning the

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They both come Specimen about many ways. from S: Agnes in Cormall. The Lower geometrical figure explains This modification complete, in a position to make I familiar, and to show the plaining of the ortan · idron, which is in the position of the common fractures of all fluation of hime. See Jab. 78. and the father hour of the corner honding description. The upper middle 4- sided face in all the figures will be found to agree with the face of the cube Common to fluate of hime: The 4 siles of which are livelled off, and the corners as before mentioned, are parallel to the faces of the vitaidron, They forming dia square four of the Cube, eight Jaus of the octacion, and 24 bevellings; in all 38 faces.





38-sided Crystals of green fluor, containing a fewerthe octacidral Nucleus of the same substance; very rare. Cornwall.

Stunnum oxygenizatum.

Caide of Tin, in Crystals with 8- sided

Lyramids.

Elain oxyde opposite. Hairy, 0.4.141.

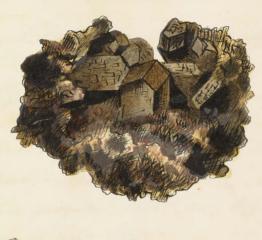
This is a rare modificiation. It is an incomplete 8- sided pyramid placed upon a 4- sided frism, at an angle of 155° according to Prome de l'Isle, and of 158 45'27" according to Hairy. This pyramid is always terminated by another 4- sided one parallel to the octaedron. They either Standon the gangue apright, with one end only finished fugra: : midally, as appears from the middle figure on the right hand, which is a farge and acrious detroched crystal: being, broken at the top, it gives an indication of a point, but on examination we find it cased on an ortaidron, which probably it one covered regularly; or they lie on their sides and are pointed at both ends: See the left hand figure. Seldon Jarge. The ganque is as usual to this crystals, vix rock crystal, chlorite, and chlorite schist, or hillas of the Cornich miners. The geometrical outline on the left hand shows the commencement of the 8- sided payramid on the edgeof the frism. There are many varieties of this modification on this Specimen, & Sometimes Two of them much base to base, and form a markele: see the bottom figure.



Oxide of Tin in Crystals, with 8-sided Pyramids.

The figures here represented approach the dodicacdron as any Sowerly has met with of British origin. It will be readily seen that the edges of the 4-sided formanid, as the meated on the left hand frigure, if continued so as to the 4-sided whem, sight of the faces of the dodicaction, of the 4-sided whemme, sight of the faces of the dodicaction, the other 4 faces being hid in the gangue, and, if with a short column, the faces would be all chomboidal; but if the column be long, the columner faces will he heragonal. as get we have not seen a dodecardron with both forwands complete. These specimens are not so black as most, and are modified very rough not so black as most, and are modified very rough.

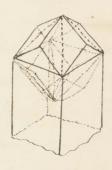
Shey howe also somewhat of a rusty othraceous hue, frobably holding more varidated from than we had.











Paide of Jin in Dodecaedrons, with Mhomboidal Stacks.

Manganesium oxygenizatum, var. frimitivum. Oxide of Manganese:

Class 3. Metals. God. 1. Homogeneous. Gen. 2. Manganese. Spec. 2. Oxide. Dio. 1. Crystallized. Var. 1. Crystal frimitive.

Gen. Char. Spec. Grav. 6.85, Somewhat malleable.
Colour grayion white, very difficult of fusion, even
mon so than Iron . Colours glass violet. Does not
combine with sulphur.

Spec Char . Combined with oxygen.

Syn. Manganese mineralized by oxygen, Kviw. 2.2.291.

Gray manganese oce, Syst. Min. Jameson.

Braunstein. Immerl. v. 2. 522.

Manganese oxyde. Flairy, v. 4.243.

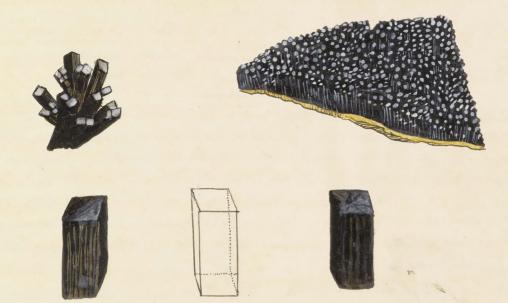
Manganese { which was first discovered to be a new metal by Bergman}, and which has since been found in a native state by M'La Perouse, in the Valley of Vicalessos, near Sem, in the neighbourhood of Floia, Pyrènces, who says it is imbedded in oxide of man-ganese; is of a Selver gray colour with a metallic firstre;

, diverginly foliated listure, somewhat malleable, and that it soils the fingers. We describe with much pleasure the present specimen of crystallised oxide, as propothous to an expectation that friend Britain mearly included all that is essential to a honowledge of mineralogy, very few genera excepted. Mines have been worked in many parts of Great Britain for oxide of manga. mese. Sowerly has some speumens from Menchip Hills in Somerset show, orystalliked in Small whoch The one figured is crystall. : Will in enlongated ones, which have this on their Ildes that agree with the fraction, The apex also Show signs of a diedral or tetraidral summet. The upper right hand figure is nearly the natural appearance and sice of the specimen; the prisms Standing veregularly and joining mear the base, where they stand whon sniphate of barytes, &c. The gangue is a sost of Stratified micacious grit, Through a stratum of which it runs in veins. In a map that came from Aberdeen, the manga-- nese milustes orystallised sulphate of barytes, &c. as hap cometimes does other stones.

The left hand where figure is magnified, and Shows how wregitarly the crystals stand on the maps in some parts. The left hand bottom fig. Shows the upright this, and on Some crystals a Shight beginning of the two faces that Sometimes much on the centre. The lethand figure shows then This meeting in 4 directions to the centre, with the cross chargonals giving signs of 4 or more faces. The Juism is Sometimes Thincated so as to form 8 Tides. Hairy knew of no other than these 8 - sided ones, with 2 or 4 Jummet at the apex. We first read of Short tribed tetracidral prisons of oxide of manganese in Catal. de Baab. v. 2. 130, from Naila, in the margra. vate of Bareith, in Germany, and soon after of rhom-- boidal tetraidal forms, matty truncated at their ea-Themties, from Ilmenan in Saxony. These of course are in Mi Guevilles matchles, collection; we find The fatter mentioned as from Spild, in D. Babington's catalogue of the collection, now belonging to Sir John It Aubin, p. 255. We are glad to be popefied of Bri-Tish spennens from the works near Aberdeen, Jish discovered by the Rev: - Smith. The freeents Sperimen was pround in 1803. It agrees exactly with

and the state of t

The two dash openmens mentioned in lat. de Praul., In which the word thunsated is restainly expersioned This is considered as the primitive form by Hairy. Oxide of manganese is used in glap houses in Small quantities, to Mear and desirobour glass by giving up some of its vaygen, and so completing the vitufication of the Iron or other colouring origine dients. It is used as a progreent or an inquedient in frinters into, and to procure organ gap from, and for many purposes, vis. as a medicine: or for oxygenising muriatic and for bleaching, &'c. about two quarts of this gass may be obtained from an owner of vaide of manganese.



Oxide of Manganese crystallized in Rhomboidal Prisms.

Siles Quartium. Hint Pebbles, &c.

Gen. 4. Silea. - Order 1. Homogenevius. Gen. 4. Silea. Spec. 1. Quanta.

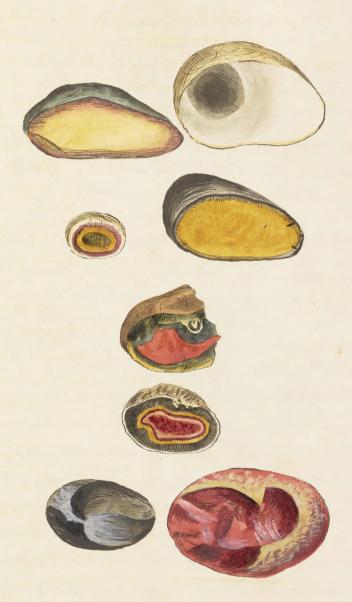
Dio. 3. Amorphous.

Syn. Flint. Kirw. V.1.301.

Truer Stein. Emmerl. v.1.143. Quarte agathe pyromague. Hairy, v.2.427.

The forms and colours of plint pebbles are extremely various, & They give strong indications of heing formed by infilhation and aggregation among the softer argillacoous rochs; as the agates, &c. Seem to be among the harder raches of a dimilar nature; See \$208 vols: The Silicous infeltration being more or less whowed by vaide of iron, gravitates, or aggregates, into various forms. The upper public at the night hand is white at one end, gra-· Mually becoming grayer Towards the other end, with a hine or two of interruption, and at length assuming the teature I colour of rommon gray flint 5 The lommon ingredients are Silea - 80 The unislowed hart is sometimes less indurated, but insoluble in and, and Herns of only destitute of the colouring matter. The coat of spears to have been formed when the process was nearly complete as thops of coloured water, or tury centine, will in general, form a margin in the Same manner on substances on which they one put: The other seem formed in a dunitar way, varying as to regularity. An approach to yellow, with a border of down crimson, is seen in the near stone, and the roat is nearly black with very tittle variety. The next right hand Sigure was found near Norwich. It is remarkable for the uniformity of the ochraseous think all through it, and the dark coat penetrating it in the warms, which seems to conform the

376 idea of the margin being formed as the substance was begin. ming to harden. The next stone is very regularly formed. In this the yellow is very bright. The air makes the fractures bright gellow. The upper central one is more trugular, but is in the middle as bright a connatar, or vermilion, as to be found in these sort of dones, Tevenibling red jasper, The fragment beneath has been irregular. by modefied. The center the brightest crimson. The fower left hand Jugure is uniformly of a ned jasper colour, not frequent by its fraction It seems not tobe so hard a tough as jasper. This is a title sovered with an orhraceous hue. The gray and black flints are not rare, mostly found in wet clayer places, often very black, Sometime Shiring, or blotched with a gray or whitish home. The lefach outsides grave bighter misibes I the gray black. Sebbles from the sixe of a small to a Windsor Bean are dold at 10 or 12 per foat to make walks &c. near London, of a fine ochrey hue. if suddenly exposed to hear or cold if taken from damp pito, They will not I then are of no use but for manure. . They are often used at Sand Yown laste, to repet the Sea. They are of use to protect the regetable earth from high winds. retaining at the same him might dews and moritume-fit for begetation. Will protect the roots of thees from the develing hear as they imbibe hear rather stowly. When free from flaws they will hear outling, engraving, and polishing, as well as the oriental cornelians, which They partly resemble in their shiring fracture, & almost equal hard ness,



Variety of common Flint Lebbles.

1-88

Herrum arseniatum.

Class 3. Metals. Order 1. Homogeneous. Gen. 6. Iron. Spec. 8. Arseniate.

Dio.1. Crystallized: Var. Primitive.

Spec. Char. Combined with arsenic acid.

Syn. Asseniate of Fron. Bournon Phil Frans.

This was mostly confounded with auseneate of lop-Ther with the celebrated (henevia by anythis analysis ascertained it to be an arseniate of Fron: See Phil. Trans. 1801 Count Bournon observes that it crystallises in cubes rarehave it a little so perhaps the 4th of its chameter; and his figure conveys that idea, perhaps unintentionally. The sides he observes are smooth and brilliant. They are chagonally strated in atternate order on Each face; this is readily deen in most of my the. "Cinens. Lee Ferrum Julphureum, tab. 168. in which The This we parallel to the edger of the cube; and Count Boumon has discovered a new species of entir oxide of From with the think at right angles, parallel to every edge of the cube: perhaps these This may become marks of importance; They are aften a little concave in the centre,

THE RESERVE THE PARTY OF THE PA

and rising to the edges in the longitudinal direction of the Sowerby has them from a light yellowish green to a bright given, apparently neither inclining to yellow or belie, passing on to dupith like green, theme to an clive, being heightened with Ind; then the gellow and red prepailing, they are of a brownsh Tesin colour: Some very transporent all a title. The upper Igure Shows them of the natural Site in a gangue of quark mined with oxides of copper and even &c. The middle figure is magnified to show their construction more reachily; and the right - hand geometrical figure shows the Strice. In the Left hand bottom figure, The only medification himoron of this substance, anording to bount Bournon "4 of the 8" solid angles of the Dube are replaced by an equal number of equilational equitational thrangular planes, schooled in Such a manna that every one of the sides of the cube briones an clongated hexagon, having two angles of go cach, and 4 of 135. Crystals mochfied in this way are very sence. Sowerby Saw but one speumen, in the collection of dir J. of Austin. Its crystals are frutty large and well defined." Sawerly considers as a queak Tarety a Specimen in his musum which exposes I crystates thus Amnoaled. It is easily Scratched with a fin, but it Stratches common calcanons Spar. By Thenevice analysis it was it was found to Istia - - - - 4 lowtain.

Silica ---- 4
Arsenie acid - 31
Oxide of Iron - 45.5

- of lopper - 9
Water --- 10:5









Arseniate of Iron crystallized in Cubes.

Tincum sulphuratum. Sulphuret of Line, Bland:

Class 3. Metals Order 1. Homogeneous.

Spec. Char. Tine in combination with sulphur.

Syn. Line mineralized by sulphur with iron.

Kirw. v. 1. 237.

Blender, Emmerl. v. 2.448. Syst. Min. Jameson;

Line sulphure. Hairy, v.4.16%.

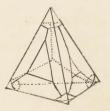
Blende (commonly called Black fack by the miners) is often found crystallicit, but generally in a very confoundmanner, and most prequently of a deep jet-black. The
tehachal eveniety, here figured, has something of a deep
black hester, and approaches to a lead like affrearame.
taugh one or two Soldary crystals, they are generally in
plateds chuter or groups; the plates for the most part
diminating from the edges to the centre of the traingular faces, forming these faces, as on the clark side
of the piph hand figure. Caasionally each face
of the jopalition will differ; and one may either
be seen plain, as at the lase of the lowermost

geometrial figure, or have the above-mentioned three faces remembing in a point file the dolled forces on the distant side, or with another triangular fare like the night or left hand sides of the Jame figure. The mineations of the four solid angles, in the lefthand and geometrical forese, rose parallel to the ortaidron. These modifications are all wident in the present specimen, which is a cornish one. They rest one a greenish chlorite, on a light dort of schiet or staty rock, commonly called trillas by the Comish miners. They are often accompanied with rock crystate and copper pyrites. The mileur is a Thomboidal dedicacdron, and the integrant molecule I a letraedron with isosceles triangular faces, at-Lording to Hairy. The modification called encadre by that author, among the dulphunds of lopper, Tesembles this very much; but he does not seem to have known sowh in suffhind of zinc. The Specific gravity is 4:1665 awarding to Brison. The may be soratched with a hangle, and it will Sorath sulphate of bargles, but not fluor. Refraction Simple, Hairy









Tetraidral Blend or Sufficient of Tinc.

variously modified.

Carbo oxygenizatus bituminosus. Bituminous Oxide of Carbon, or Bovey Coal.

Glass 1. Combustibles. Order 3. Mixed.
Syn. Bovey Coal. Hatchett in Phil. Trans. for 1804.385.
Compart Carbonated Wood. Kirw. 2.61.

Boxey, in Devomshire, has been some thing famous for afford. ing a faforlized wood of a nature peculiar to the place, commonly talled boney load. It appears that the main dife is from South to North. The whiper noch and terminates Who the remains of a Bog. The upper part contains themps and frohen remains of Shoulds and Tries, little changed: a little way down they are Somewhat resmously bitiminized; see tab. . I till appears the wood. touch greasy, will polish with the nail, being saturated or closed with bitimmons matter. In places reserious Aphathum is intermised deetab. 2014 other places took like common charcoal tab. 199. most for fech Boney loal is found deepech, being a compound of these two, life resin in the between I the load more indurated, torning a wood time betwinnous loal. There are 19 strata Journal in intermediate fradations. The lowest most perfect, about yo feel dup or more, where the various prepares, and he tate of confinement of the different Strata, retard or accellerale the procep. It seldom forms a large piece of Sorter --brand black, although the charcoal before mentioned Is as black as common churcoal. often very dark coloured

Charles and the second of the

The fact of the lowed fig. used as load by the poor, mear, and at a folloy, established on purpose to turn it to account. The Smell is unpleasant. "It burns to thanoal "Takhott says "ad. "dily, with a flame, when half thoused wood - not enable, if quite fund leaves white adver, the word" probably it was originally formed by being a bog of at 17 chiffment times, between each sufficient time for fresh wood 2 clay to collect. The Stata life dense I looser than that under which hewrastle load is dense I looser than that under which hewrastle load is formed. The resinous or bituminous parts have been more or lep allowed to waporate according to the prepue; at the surface but little, I surely at all at the bottome.

and as it loses the most volable principles, the more durable woody principles, or earlow, will last for age.



Bitumious Cride of Carbon, or Bovery Coal:



Sulphur nativum. Native Sulphur, or Brimstone.

Gen. 6. Sulphur. Spec. 1. Homogeneous.

Gen. Charl. Solid. Colour hale yellow. Burns with

a blue flame and pungent sufficialing

odow.

Spec. Char. Unionibined.

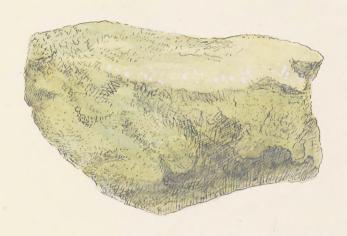
Syn. Native Sulphur. Rinw. 2.69.

Soupe. Hairy, 3.277. Nativelischer Schwefel. Emment. 2.89. Pyrites nations. Linn. ed. 13.1.3. 113.

Sowerly has specimens of native Sulphur from Amlach, N. Wales. It is in an earthy-looking state, something the flowers of Sulphur. he does not know that it has get been found engetablished in Great Britain, but thinks it profible may. The present is in a dull thinks it profible may. The present is in a dull thinks it frofible may the facts to to to tably prove; and susty state, but in some parts to to to ably prove; and after being refined is east nito cones and sent up to London.

Apon a minute commation with a lens, it of whear to be mixed with fine and or granules of Quarth; see the lower figure.

It is rather wrious to find that Sulphur with Iron, &c. is very sommon, and the odour of Sulphur is very strong in many places under ground fruth dig, particularly among accased vegetables in summer, you most authors search of it as only found in the neighbourhood of val. canoes. This is not the ease in Wales. Its colour is pellowish with some shade of green; it is found ion order or in book fowder; by fruction smits a peculiar ordour, and becomes electric; meta at 180, and then appears zed; it flames of a bright believe at 302; emil. ting a sharp or pungent adour when it a brooks the pune air of the atmosphere, causing a stiffing sentence of a bright before it absorbs the strong and becomes accepted the subsence without much asteration.





Native Sulphur, or Brimstone.

After Juging the resinous Aphablum it is proper to show the nature of the wood, from the same shot, in the hapage to what the people of the neighbourhood call plant, and Bovey load. The upper specimen is nearly in the state in which we find rotten wood Sometimes above ground, even in parts of hving threes; with an earthy fofiil. The appearance. The grain and fracture of the wood still remain, with the fragments so sharp, That were it not for the colour and dull earthy ap. : pearame, it would seem but title attened: It is how. · lues, so soft as to me oway under the priore when Koman Ochre, or the brown miside of the bash of some old firs. I burns at first with a flame, then with much smoke and an odour the the Resin. -ous to thimen, retaining a spark for sometime, almost the Tourswood.

The Sower Specimen is marly of the Same nature as the above, with a more rotten appearance with roots the an I so soft as to have been preced with roots the an larth; which of two also sometimes happens to the sotten points of fiving trees. But what is very remarkable, the two broad specimens. Surfaces of this specimen deautly appear as if they had been burnet, so as to de a perfect charcoal; and neither these fibres nos

Charles of the control of the contro



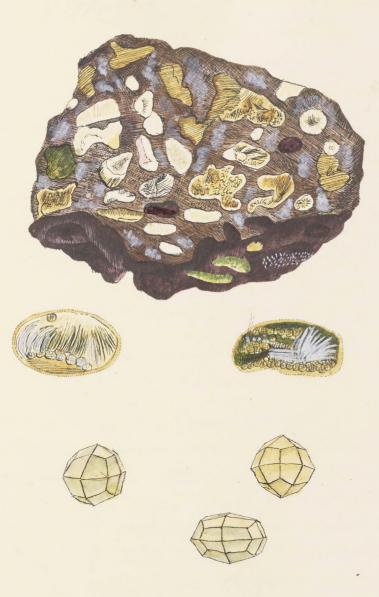
Resinous Bitumen.

Sitex Analcimus, var. fibrosus. Trap.

Syn . Leolite . Amos v. 1. 278.

Analisme Fadie. Hany, v. 3.182.

Leolite, formerly so called, is often found in Trap, as if hafting from opaque hyalite of thino (see tab. 173.), at length Leaving The spaces where it was fish formed emply, and giving the Tone The appearance of a scoria of or Casallie Tava. This is a ned variety of basaltic trap, which has hydite of a rebble- the appearance in one part. In some cavities it has partly febrous Zeoleto; in others the reolite officers in fine planents, Sometimes of a silling hustre, filling the holes line tollow or with loose threads, which are aften statered more or les in origidar hundles, Somewhat radiating. The hollows which contain these are mostly haid with I mall crystals. These at frish dight Look the quarte, such as often sparte in common flints but if tramined with a glass their Itmeliere determine, what they are. See tab . 202. and magnified figure at the middle and bottom of this drawing. We use the old term of Beaute, as being moch familian. at fresent. It is synonymous with analume.



Leolite in Trap Scotland.

SULT tulium, vin. inenaceum. Sandy Tale.

Syn. Mulatto Stone of the Trish.

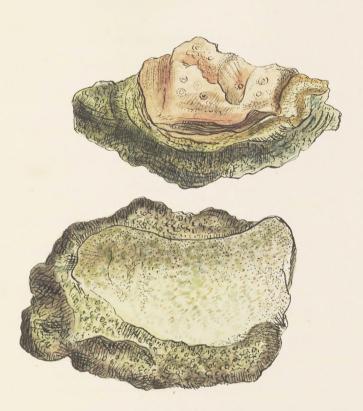
This is abundant in the neighbourhood of Belfast, and found under a Stratum of Linestone. It is harder than the fast, being sufficiently incorporated and indivated to be termed a stone, thus differing from the other, atthough herhaps containing the Jame materials; via Sund and Lime, with popully Jone, clay, herits Tale.

The support figure same from Melfast, which has the simpression of an oyster, without any remain, of the shall, and that part which seemed to be the simpression of the somecting sartilage of the oyster has the partner of larbonate of Line. There we often no doubt curious shells found in this substance: The green Tale which shots this stone gives it the characteristic by which it is commonly recognised, and often other stones which have greenish substances

She tower specimen was sent with others, by ?.

Scott. All had more or less infrespions on them, and
mostly of the same animal or shell, something
the a curved oyster, Of these Sowerby has some
tunion small specimens, from Wingham in Hint,
about ten miles from the Sea. There were no
vestiges of chlorite about them? which is very sommon where sand
a chlorite are found together.

The formation of these rochs or sandy marles &c. Seems to be marly of the same date wherever they are found atthough sometimes near the surface of the earth, or sovered with Linestone rochs at various dipths.



Mulatto Stone.

Silex Analcimus.

Analcime.

Class 2. Earths. Order 1. Homogeneous.

Gen. 4. Silex. Spec. 16. Analisme.

Spec. Chan. Primitive form, The cube. Spec. Grav.

about 2. Electricity difficult to excite by

friction. Vitrous, Suible for se mito a
transfearent glass.

Syn. Visurian or white Garnet. Kino. v.1. 285.

Wurfel zeolith. Emmerl. v.1. 205.

La zeolithe cubique. Broch. v.1. 304.

Analisme. Hairy, v.3. 180.

Vacavian or white Garnet & The Substance commonly called Vacavian Should not be confounded with this, as it is a very different Substance which is called Socrave by Hairy, &.

574. and is commonly of a dark colour, but is probably michided under M. Kinivan's 18-, 36-, and 56- sidedcrystals of Vernoien Garnet? Is the only substance crystals of Vernoien Garnet? Is the only substance with

This species : { Including only his 24- vided crystals} but in this as in many other Imbotances described by that queak author, he does not observe whether he ever saw any thing time it found in Great Britain. The specimen here figured came from Anh leston, 8. miles week of Blinburgh, and seems always to frewent the same orystallitation more or less compressed. The crystals vary in handparency from transmid to meanly spagne white, and are often of a pale ned, cometimes of a dull Salmon colour. Sowerby has some from Catton this was Edin? The fractione is often very confused, and somewhat the quark, after being dropt ned hot into water. Sowerby found. one with a proper entire fracture among many Specimens, which leaves no room to doubt that The crystals here figured belong to the cubic Leshte of Brothant. The Dumbarton crystals are also

The same offices.

The rock however in which they are found differs, as well as the manner of Their immersion. Those figured are in gran. - Hein & Horne blende and felspar } of Wenner, (see Arman 1. 353.) and schudled in hollow craches or fifames. Those of tab. 200. are lying in hollows or moulds, and are apparently the residuum of The substance which previously felled the place Space. Rive. Speaks of Vermian Gamets from The size of a pino head, to that of an inch. We have some which defer in appearance only in a airtier hue, The gangue often partly thickmg about Them, which is of a muddy brown; The mould or holes They were in we some smooth and Some rough. This is the amphyene of Sany, and might be confounded with the analume: but the father can be firsted by The blow-like; and if of the transparent kind,

In at first becomes opaque: if the heat be continued it secomes transparent, and at length foures. The opaque first become transparent & there five . M. Shirw. says The Vestivian garouts first per se: but our Vestion greents appear to agree with what Hairy days of his amphigene (vix.) that it is infusible, although the malume may be fixed: both down are said to he found at Vermions. The hyalite, zeolite, and anal--cime of these 3 plates seem nearly allied, Ells they are all fusible for se by the blowpipe, and & agnee Somewhat in this particular with the South phosphor = estent Leolite of which the analysis is given by M. Hen = redy in the Phil . Mag .; it is desirable for that gentleman to examine the difference, and favour the world with That result? and by some are thought to be Nanether of each other. We hope analysis will soon Mean up the point. Hairy takes his name from. The weath dignee of electricity this mineral receives by heing rubbed; and we have found it just capable of holding a hair for a short time.



Cubic Leolite, or Analcime, Scotland.

Forum oxygenizatum, our, radiatum.

Radiated Pride of Fron, or Hamatite.

Gen y. Stron. Shee 3. Oxide.

Syn. Brown Shematiles. Anno. v. 2. 163.

Stanner Glafs-kopf. Emmerl. v. 2. 323.

Her oxide Hamatile. Hairy v. 4. 105.

This variety of Homatitue From one, comes from near Edin? and has not long been discound. it has much the of-- pearance of orude iron, with nearly The same Shining four. - hime in the dimethin of the radio, but blacker & duller in The opposite direction. These radio Sometimes Commindle The brushes in the matrice, which is a brown May. It is not magnetice. Some of the variety fig. in tab. 62. is ocea. essonally found about it. The ends are sometimes terminated beyond the matrix, the the end of a bunch of wires, or obse mely crystallised with the ends approaching those of tab. 162 and . 163 . Kin Jays, " seldom that grey . External histri 2, 3. Internal 2,1. Thee, Grav. from 3.789 to 3.951. Theah reddish, or yellowish brown in ours the powder the Jame colour as the streak "not magnetic till calcined, blackens before the blowpipe, gives Borac a yellow hingo with some effer reserve." We do not honor it has been analynd.





Remotitic From La from Salisbury Graig, near

Bitumen ruiniferum!

Resinous Bilumen.

Class 1. Combustibles. Order 3. Mised.

Syn. Retinisphattum. Hatchett in Phil. Juns. for

This very inflammable substance would by its usual appearance; be taken for dark himber while wet, and for common thay when dry; consequently there is nothing in 15 common appearance that would indicate its inflam. anability as nesinous quality. Very nice discrimination is therefore requisite to comprehend it. To the touch how ever it in some measure indicates a resinous quality. Mr. Statebutt who find mentioned the in Line Frans. 0.4. 139, observes that " a yellowish brown compact substime which to whow and frustine somewhat resembles for -Yuginous elay, is found occasionally with the Bovey Coal. It is brittle and highly inflammable; it melts like Bothemen, and emits a mohe which In Smell resembles Amber. This substaine is but Tarely found. He also observes in Shil. Trans. 1804. 402. That " it is found in preces of a moderate site.

THE RESERVE OF THE PARTY OF THE

The fracture is imperfectly conchoided. It appears earthy extanded; but when broken exhibits, in a shight degree, a wither our faith. The fragments we irregularly angular, and come pletty opaque at the edges: This extremely britte it does not apparently become softened when held some time in the hand, but emits a faint restinous odown. The perfect gravity at a temperature of 60° of Tahrenheit is perfect gravity at a temperature of 60° of Tahrenheit is meth, smokes much, burns with a bright flame, and meth, smokes much, burns with a bright flame, and yields a very fragment odown, like some of the sweet yields a very fragment odown, the some of the sweet seemted resins, but which at last becomes tainful scented resins, but which at last becomes tainful south that of asphalture. The method map when cold is black, very britte, & breaks with a glosing fracture. By the analysis of 100 grains by M. Habbett it appears to contain:

Besin 55
Asphaltim 41
Earthy residuum ... 3

This with a valuable series of the wood passing to the most profest Bovey load, came from Bovey Healthfield near Chudleigh, Devonshire.



Resinous Bitumen.

When Sowerby first visited the Isle of Dogs, he thought it would be interesting to obscure and collect the strata as he - longing to a certain level pretty well determined by its orinity to the Thames. It was both beautiful & intenshing to observe the Sulphur forming on the old strongs of They That were found from 9 to 18 feet below the common level of the place; and perhaps it is no less remarkable that a stratum of leaves, which was in the same places 3 or more feet thick had a strong smell of sulphin; but the Sulphur in general formed supplate of line or grypoum, with the Stitle Line among it, sparhling in the Sun like minute Diamonds. The same occurred sometimes whon the champs of trees; but, in Some parts the Sufflur was nearly fure, brighter than that from Almoch, covering the wood completely; in other places it seemed to be paping with the moisture out of the cracks, and followed the longitudinal direction of the from, methely contrasting with the spartling by your. The golden Ane, equalled the heartiful gellow Lichens on Shumps of thees. We believe it orms in some plans in the milde of growing Their.



Native Sulphur, or Brimstone.

Surtun brand.

This is found near the mouth of the Ouse, ten miles from Congliton, Super; and is of the Same hinds as The Sutherbound of Juland. Near the Anylaw of the fround its changes are domewhat deferent from those of the foregoing, as it is The resino-betuminous, and more vary-earbonized. It is found in farge makes resembling compressed Tumps of hees, and is I'm most perfect black the It; but if somhand with good Jet, has rather a gray each. Shif. Manhis gave Sowerby a piece near Two feet fong, and above one in the broadet drameter, The comprehed drameter is about two wishes. The transverse section shows the concentric formation of The wood, and the vides crack or flake of more or less in wiles. I is more britte than get, and being les botummons, is not rendered electric by frution. I is often so much unfregnated by with finites that it is aft to fall to pieces with

a polith as Surtwibrand.



Surturbound.

formation .

Therrum oxygenization; Var. Malactiticum. Statostitical Caride of Tron.

> Class 3. Metals. Order 1. Homogenrous. Gen. 8. Fron. Spec. 3. Oxide of. Div. 2. Imitative.

From is remarkable for being so closely surrounded tooth hoch brystals, in a very curious situation. It is apparent that the From how been fracepitated in a very moist state, and was not likely to hime-that the From how been fracepitated that the State, and was not likely to hime-that the Stone, and must evidently have been formed at the From, and must evidently have been formed at the same time with the Stone, or afterwards; but this fatter is certainly most probable.

This is the blackest state of Romatiles, with the radicating fracture, its common character.

This specimen is from lornwall; the rocks of which lounty are generally supposed to be of primitive



Stalartitical Oxide of Iron, or Iron Flamatitis
in Quarto.

4-34

Silier Granatus. White Garnet

Gab 2. Eurths. Ord. 1. Homogeneous. Gen. 4. Silve. Spec. Granatus. Dio. 1. brystallized.

Soverby Thinks This has never heen before mentioned. Its sino do small hardly withle with the lend. by them we can distern the modification common to Garnet, vis. the Thomboidal dodecaidron. The trial of the species was the enothered by the blow pipe, under which it resembles the com - mon Gornet, tab. 69 . and . 99. These are found in brugular panels, each brystale from the site of a small finis headto extreme minuteness, Sometimes clear and bright at others of a Mellowish and dirty how. They have generally well defined sharp faceto, seem to vary tettle. They run in lines at the internals of the devisions in the matrix, which at. - hauted notice by the worious appearance of its yellowish, meenish, hight and dark reddish of brown colours . These-Gamets are sometimes mixed among a rough make of nearly their own nature, which deems to missporato with some Quarts. In Jusion by the How hipe they Jun mito a black enamed without addition. The Matrix is driffly (arbonate of Line, and a Silveous substance Essembling dult reddish Josper.



Crystallized Garnets of a whitish colour.

Jab. 209.

Silex Quartzum!. -Rock Crystal.

Gen. 4. Silea. Order 1. Homogeneous. Gen. 4. Silea. Spec. 1. Quartzum. Div. 1. Crystalkized.

thoch brystale have been drittengurshed by many hime raloguite from the manner in which the Constate, defin - ding on the toburn, swell or thicken in the middle, Brock bry state above are so formed, but not all of them in this manner, as the Carin forum tab. 73. The tetering Them from Quarte & Quarte in fine become opaque 3, subbed to gether ore phosphonescent, and exhale a peculiar em, : pyreumatic odour. All stones as hard as flint, to the consolidated acreal Deamond, does this with little difference Mock Crystal is often auompanied with Chilorte so Green of Ewembles moss, I has been taken for it: In this specimen harts are simpregnated with it, and seem duomposing: The whole has something of an opaque whitish cast rather huntier to this sort of Crystal. They often have the substance called Lai - Luna about Them.



Rock Crystal and Chlorite. Cornwall.

Maile or Chiastolite.

Order 1. Homogeneous. Class 2. Forths.

Syn. Marke Basaltique, &c. Det Iste, 2.440.

Macles. Danbenton, 16.

Chrastolith. Ranstein, 28.

Macle, Stairy, 3. 26%.

A black state holding in it great numbers of spinula of an ichinus spatagus. Some Sorpula petrified in Marle in its Section resembles this: the inside fact is yound, I the four corners more or less rounded. Jound in Norfalli's Woodwards Catalogue of Hofsils, t.

This specimen came from Sheddaw in humberland. said also to have been found in some parts of Scotland. it is mentioned by few Mineralogists. The same sont In a similar gangere, has been brought to England from Bayreuth, & another dort has been imported from Liston, without a gangue, and much larger than these. They are religiously esteemed on account of the resemblance of the black part to a crops, and are sold by the months as of great me to the popelies, gene-- Yally somewhat mulilated to humour the appearance

446 of the crofs, & to fet them for wearing, as preservatives from all wils. Mr. Thumphrys has a freumen of this lack dort about 34 of an with broad at top, and nearly resembling owns. It is crystallised in shightly whomboidal four-sided frisms of about 85° and 95, according to De & Bele. The famina Seem parallel to the faces of the column, I there appears . by the construction and meeting of the farmina that there maybe a diagonal devision. Thractione him, carthy approaching to splintery. According to Harry, it appears that the integrant molecule is the tetraidrow. Sowerly how a foffice very marly resembling this, with an almost intine black centre, I mearly a whiter hearly covering. The black is generally suppond to be like the shale or substance of the crinitals in. - Closune . So that the whiter part is is chiefly spokenof . It is ourrous they are so governed by a peculiar modification as to conjoin in such a manner asto envelope each other, yet retaining the shomboidal form. Spic. Grav. 2.9444. At sor have seen no analysis we would not determine its systematic name or place, but we hope to attain more knowledge of it at some future period.



Chiastolite. Mount Shiddaw.

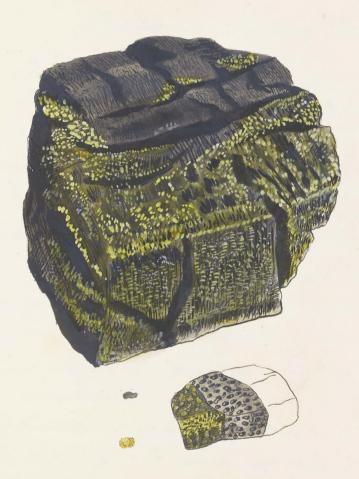
Carlo caygonizatus.

Oxide of larbon, or loak.

Gen. 7. Carbon . Spec. 3. Oxide.

Soverly how Coak, or what is commonly called linder, found near the Type, which cropes lockfield thell. called When stone or Blue stone Type, 2 other load mines in the North of Whin much not here be confounded with small Grained Granite: It is rather a gray basalt including feldtspar. This Type is of a great exwe find the is the more to the loak or thow the Coal the Sihe fractione on the Coal at the upper part. which is the appearance the had when first received, and the artificial loak, in forming a horizontal Columnar appearance, with craches and burning without flame, &c. When examined with a lens The perforations appear to deffer from artificial loak in being more smooth & shining. The other park

Newcastle Coal.



Oxide of Combon, or Coak.

Formum very genizatum; Var. stalactiticum. Stalactitical Carde of Iron.

Gals 3. Metals. Gen. 8. Fron.

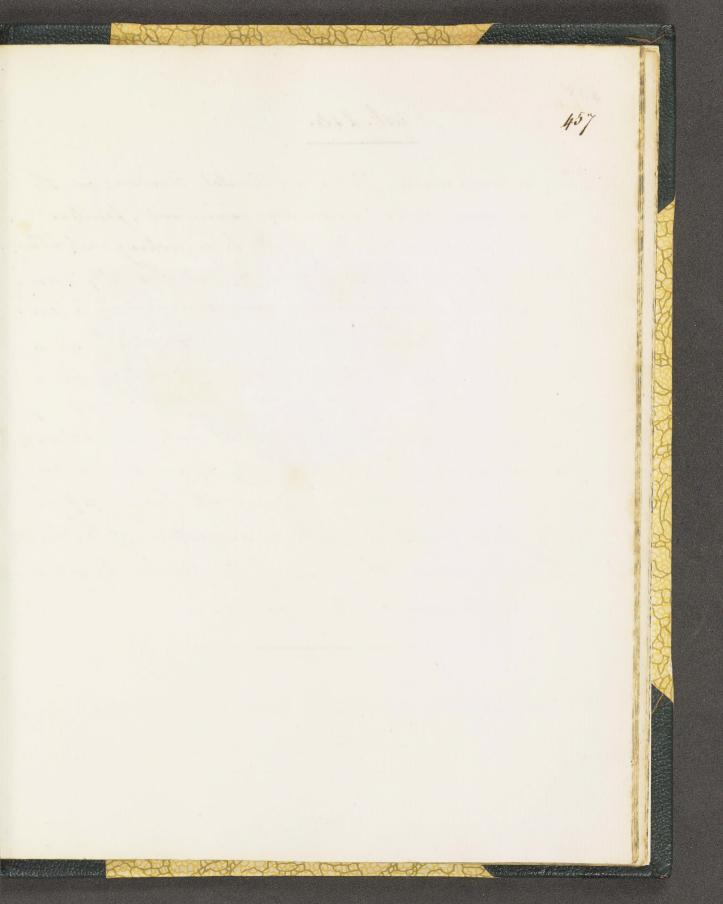
Ord. 1. Homogeneous. Spec. 3. Oxide of.

This is another remarkable statustitual production from Mam Tor Dorby shire, it was taken for mineral fith, which the resembles. It is found to be an Oxide of Iron. Its situation is nearly as remarkable, when carefully examined, as that mentioned in another place; for its being so distinctly formed about the Calcarious stalactite, quies an idea of its being a lighter substance. This might appear unpossible. Nature, however is seldom at variance with herself and by a steady observance we may reconcile these apparent deflicutters. It might happen that water very reachly took up the oxide of Joon which it found in its papage through the matrix, and, by dropping into Some hollow, formed a statachte, often coated by that which follows, and which was not so soon dipoles

or as soon total for meipitation. Some of the coats are on such a state that they Ecomble Martial thiops. It comes near to the appearance of Flormatites; it however has not the smalled character, but rather the conchoidal fractione of freth. I little heat renders it magnetice but does not take much of the blacknep off. perhops It contains a little Manganese, as the otherwood park becomes somewhat crimson with heat. Asmall degree of heat, would melt it if it were patch. This is a dort of orgstallised stalactite as the valcanions hart may be the Color senter of Werner, The fraction is more or les distinct in this specimen, as well in ternally as catemally. It seems to have been formed after the brow, by nearly the same prough but was retained tenger by the water. The ochraceous part at first sight resembles a pariet of leaves from a chalquate spring, and is of a deep orange colour.



Stalactitical Oxide of From, coated by Carbonate of Line.



This is remarkable for its conchoidal fracture, on the face of which, when ministely examined, peculiar minings own, bounded by curved lines croping out other, I terminating in a hind of centre not unafitty usembeling the parties of Carbonate of Lime with a friend of arvilinear crystally ation; I Shave lately received a fine specimen of Carbonute of Line from Awhendale, very expupire of this? The bracks deem not atall quided by this. it doon deparates of thetehod out. This externally of a blooming gray, & sistermally of an olive green. tolour. This is ooking more or lep from different parts of the gangue, which is a mixture of Carbonate of Line, Galona, &c. Some of the smaller particles have a reddish illenition in their flows.



Soft clashic Bitumen harder than tab and much in the state of India Phubber.

Ferrum Cupreo - anseniation. Enpreous Arseniate of Ison.

Mafi 3. Metals. Ond. 1. Homogeneous. Gen. 7. Iron. Spec. Anseniate.

Var . Copreous.

Spec. Char. Iron. Copper, and Arsenic Acid in combi

Syn. Enpreous Arseniate of Iron. Bournon an Chene. vie . Shil : Trans. for 1801

This substance, which to rave in Comwall, has been brought from Selecia by Profesor Sallar. Jound in the Muthel mine along with the cubic Anseniate of From. The orgitals are always small, generally clustered more or left in bundles or confused. The midwichuals form Thombordal prising having the two opposite angles very obtuse; consequently the two others are very auto. terminating with four stalene mangular faces, fixed fower on the aute angles than on the obterse ones. We cannot be certain that The angle bearing whon the obtuse side of the promid wond a right angle: de the Geometrical figure.

The suppor specimen is a largish collection of clusters war. Toursey grouped deverging from a centre with the faces of the supramide only exhoused. It is on an arregular gangue of white Quarte with some blackwish bumps of gray Suffered of lopper, and a few ecclangular plates, sper-haps Mranite. The best hand bottom from response response of an ochraicous gangue. Specialise, orathed in the hollows of an ochraicous gangue. These sometimes expose one, and at others both ends: See the Sower figure. These crystals are mostly of a fight shiring sage green.

Analysis by Chenivia:



Cuprecus Asseniate of Fron.

464 and be grown mariful

. 466

In examing the Bitumens, it is difficult to say whother they hap from Naphta & Petroleum to Poth and Asphathum by a regular gradation, through the elastic hund, or not as they seem to hats naturally from one to another without them. By anidentially breaking a maje of crystallered Carbonde of Line, was found in a hollow a black mineral plit, in a legist state: de the left hand bottom figure. This has now become condensed and elastic, but not so much so as the substance in figure The outer surface is brownish, with more starting, and may be deparated by the mail the the middle figure, which shows the outside and enside. The left hand fig. Thous also hollows in the untre of the outer court, domething tohe the mouth of a minute crater; gwing a strong idea of its having been once In a state of powerful & bullition from that hole: This is a darker colound Bitumen, profession of quester elastity Than any that has been before mentioned. I perhaps nearly the last of the clastic into.

Tab 115 is a more indurated Bitumen, which seems to how heen in a state of ebuttition, from the cinular indentures Ternaining on the buthles: see the right hand figures at The bottom. They are very neatly formed whon whith arbie Theor, and seem as if they had splashed about in falling. Whatever is the cause the effect may be gained by a stronger heat; as the neares these sub-Tancer approach combustion, the more they harden, and form the appear ance of Asphattam, which we Suspect this sudstance to be. This is from the same Man The other came from, and is black all through. Frantimes conchoidal & shining, distitute of any lighter Minitims, veing perfectly opaque.

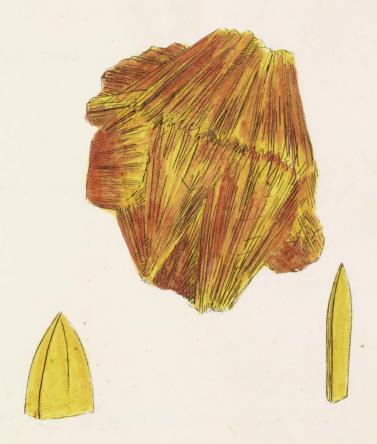


Soft etastic beturnen, more indurated, approaching

9490 till chala bonnen, mer enderend , a forenheng . Hy hallum.

4/1 in the said the said one

This is marly of the same formation as Tab. 10%. The orgotallication radiating from various centres with The terminations meeting & The Radie in M: Halls openimen mentioned tab. 10% are a foot long the siche of which are divided by a double direction of and lines croping To a central bar, consequently creumscribing showhi forms with two convex and two concave sides? They however are in more determined columns of three deles, and the pyramids at frish sight appear more dimple. however, there is a tendency to double each face of the pyramid, making, fine the metastatique, a 6- sided promide. This is one of the darket lolound our of This nature.



Sugar-candid , like Carbonate of Sime, with a frenchiar Crystallization, durker than the Sast.

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			(*)
Carbo	11 oxygenizatus	Dentight Coal	49.
) Swansia	13
	- Situminosus	1300eg	387
		(Bosey	431
Chlorite A		with Sand	
		Self-desired allowed, after the contraction of the	
Cala	1 susphuta	(дуринт	63
	carbonata	Jasicidated	83
	war in our	a) inverted	
		1	
		Madrificate?	15%

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	plated 25
	frated 25
Sufferier / nation	393
	423
Lincum #	
Lincum /	
) Councalled 25%
sulphunet	

Uranium

Coide of 99

